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THE WALSH-SUZZALLO
ARITHMETICS

THIRD YEAR BOOK



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WALSH-SUZZALLO ARITHMETICS

BY

JOHN H. WALSH

ASSOCIATE SUPERINTENDENT OF SCHOOLS
THE CITY OF NEW YORK

AND

HENRY SUZZALLO

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By Grades

THIRD YEAR

D. C. HEATH & CO., PUBLISHERS
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- III. Fifth Year Arithmetic
- IV. Sixth Year Arithmetic
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- VI. Eighth Year Arithmetic

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PREFACE

THESE books are designed to give an elementary school child all the arithmetical power necessary to cope with the situations of common everyday life. A social survey of the usual responsibilities of men has determined omissions and additions. The methods of learning and teaching employed have been indicated by an analysis of thousands of typical arithmetical errors collected in ordinary schools.

Because a standard of social efficiency has been applied throughout, it is expected that the immediate competency of the pupil leaving school will be greatly increased. Because a standard of pedagogical economy has likewise been rigidly observed, it is also expected that the pupils will develop this competency one to two years earlier.

In consequence, this series has been so arranged that a child may acquire an easy and accurate command over all fundamental processes, both simple and complex, by the end of the sixth year. The seventh and eighth school years are thus left free for a study of those business institutions and practices, the understanding of which is vital to an extended use of arithmetic in practical life.

This particular book, the first one in the series, covers

the fundamental elements of arithmetical manipulation and thought. Thus a child who goes no farther than the fourth or fifth grade will be so familiar with essentials that he can readily learn more arithmetic by himself.

No attempt has been made to project the pupil into unfamiliar situations. His experience is already greater than his power of mathematical interpretation. The teacher of primary arithmetic has accomplished enough when she has taught the child to solve his own problems. Hence, a special effort has been made to keep both examples and problems within the reach of the child.

While abstract work is the chief difficulty of the first school grades, it must ever be remembered that it is always a concrete and personally vital problem which provokes the need to compute. In all development of new technique, the teacher should start with an easy problem actually or orally expressed. Once the child has decided from the concrete situation what he is to do, he should be permitted to do it symbolically or abstractly. Mere drill on combinations, processes, and manipulations may well be abstract, provided the pupil feels the need of such perfection and knows that in the end his facility is to be used in the solution of real problems.

In this text, every new process is introduced by a problem that calls for its use. Similarly, the last drill upon a process is given in the form of oral and written problems. This is to remind the teacher that all abstract work, however important, is merely an intermediate stage in the

effective teaching of arithmetic. Ample provision must be made for concrete work at the beginning and end of all practice upon the mechanics of arithmetic.

The use of more than one way of working an example has been carefully avoided. We should be content with one concrete method of computation, particularly in the primary grades. To attempt to develop two different habits of response to the same situation leads to confusion and waste. Short methods of operation are given only in the higher grades.

Special attention is called to the device used to give the child a clear understanding of the manner in which formal processes are performed. Whenever a process is expressed in figures, each stage of the mental process accompanying it is also expressed in simple language. These parallel language statements take the form of simple directions given in the most economical and efficient order. If the child does not clearly see how the process has been conducted in the course of the teacher's demonstration, reference to the text makes it clear. In establishing a habit it is advantageous to follow an accurate, permanent, and consistent form. It is quite impossible for the teacher to give a great amount of attention to each individual in our large classes, and it is wise to develop in the child the power to understand and practice arithmetical manipulations by himself. In line with this effort to give the child power to care for himself, the child is constantly taught to test or check his work.

These texts are not a substitute for a good teacher; they are an important and necessary aid. They aim to be efficient and economical guides to both teacher and pupil. The topics, problems, and processes are representative of the arithmetical facts, power, and skill that will be most useful to the average citizen. The methods of treating them have been garnered from the most successful teaching practice.

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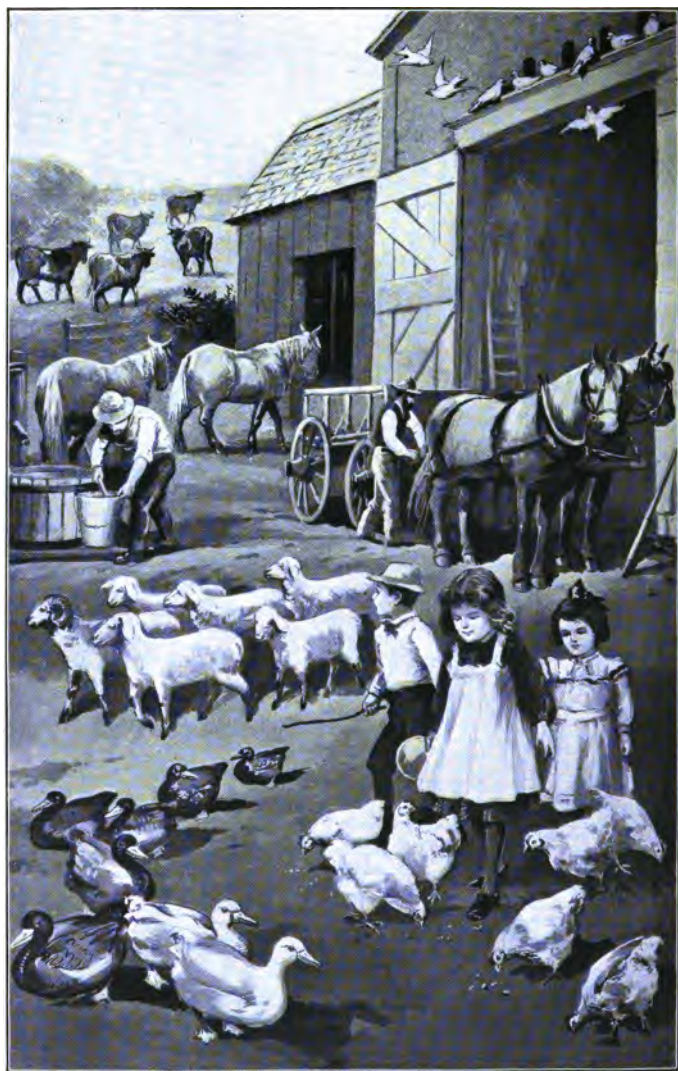
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ARITHMETIC

THIRD YEAR

SECTION I

INTRODUCTORY REVIEW

Counting

1. How many men are there in the picture on the left-hand page?
2. How many children?
3. How many horses?
4. How many cows?
5. How many sheep?
6. How many hens?
7. How many ducks?
8. How many pigeons are there in the picture?
9. How many doors has our class room?
10. How many windows?
11. How many panes of glass are there in each window?
12. How many rows of desks are there?
13. How many desks are there in each row?

Adding by Twos

1. Arthur has two large rockets and two small ones. How many rockets has he?

2. How many are two and two?

3. Ann rode three miles on the cars and two miles in the stage. How many miles did she ride?

4. How many are three and two? 2 and 3?

5. Fred has four cents in his bank. How many cents will be in the bank after he puts into it two more cents?

6. How many are four and two? 2 and 4?

7. There are five pears on one plate and two on another. How many pears are there on both plates?

8. How many are five and two? 2 and 5?

9. Helen found six eggs in one nest and two in another. How many eggs did she find?

10. How many are six and two? 2 and 6?

11. Harry is seven years old and his sister Mary is two years older. How old is Mary?

12. How many are seven and two? 2 and 7?

13. There are eight children now in the room. How many will there be when two more come?

14. How many are eight and two? 2 and 8?



Measuring

1. How many steps across the class room ?
2. How many steps are there in the length of the class room ?
3. How many glassfuls will the pitcher hold ?
4. How many pitcherfuls will the pail hold ?
5. How many glassfuls will the pint hold ?
6. How many pints will the quart hold ?
7. How many quarts will the pitcher hold ?
8. How many quarts will the pail hold ?

Playing Store

9. Use cents to pay for articles costing :
(a) Four cents ; (b) six cents ; (c) three cents ;
(d) Two cents ; (e) five cents ; (f) seven cents.
10. How many cents are there in a nickel ?
11. Using a nickel and cents, pay for articles costing : (a) Six cents ; (b) eight cents ; (c) ten cents ;
(d) nine cents ; (e) seven cents.
12. How many cents are there in a dime ?
13. How many nickels are there in a dime ?
14. How many cents are there in two nickels ?
15. If you have three cents and a nickel in your pocket how many cents have you ?
16. If you have one cent and a nickel ?
17. If you have four cents and a nickel ?
18. If you have two cents and a nickel ?

Reading and Writing Numbers

Ten is written 10.

Eleven is written 11.

Twelve is written 12.

Thirteen is written 13.

Write: Fourteen; fifteen; sixteen; seventeen;
eighteen; nineteen.

Read the following:

16, 18, 13, 19, 15, 12, 10, 14.

1. How many cents in a dime? In two dimes?
In three dimes? In four dimes? In five dimes?
In six dimes? In seven dimes? In eight dimes?
In nine dimes?

Twenty is written 20.

Thirty is written 30.

Forty is written 40.

Fifty is written 50.

Write: Sixty; seventy; eighty; ninety.

Twenty-one is written 21. Fifty-four is written 54.

Forty-three is written 43. Thirty-two is written 32.

Read the following:

22, 33, 44, 51, 65, 78, 86, 92.

The right-hand figure of a number is called the *ones'* figure.

Drill Exercises

Add:

a.	2	6	2	3	2	4	2	10
	<u>8</u>	<u>2</u>	<u>9</u>	<u>2</u>	<u>5</u>	<u>2</u>	<u>7</u>	<u>2</u>
b.	7	2	5	2	8	2	9	2
	<u>2</u>	<u>6</u>	<u>2</u>	<u>4</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>10</u>

Adding by Threes

1. There are three roses on one bush and three on another bush. How many roses are there on both bushes?



2. How many are three and three?

3. Mr. Smith sold four pigs to one man and three to another. How many pigs did he sell?

4. How many are four and three? 3 and 4?

5. A girl spent five cents for ice cream and three cents for cake. How much did she spend?

6. How many are five and three? 3 and 5?

7. There are six quarts of milk in one can and three quarts in another. How many quarts are there in both cans?

8. How many are six and three? 3 and 6?

9. Frank has seven hens and three ducks. How many has he of both?

10. How many are seven and three? 3 and 7?

11. How many fish are in a jar if there are eight gold fish and three silver fish in it?

12. How many are eight and three? 3 and 8?

13. Ned has nine marbles in a bag and three in his pocket. How many marbles has he?

14. How many are nine and three? 3 and 9?

Adding by Fours

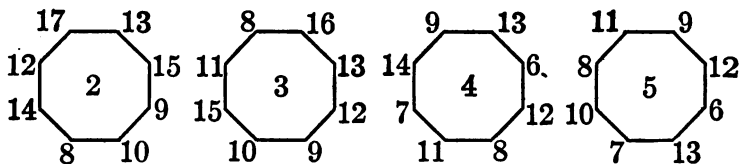
1. There are four boys and four girls in a car. How many children are there in the car?
2. How many are four and four?
3. A girl has a five-cent piece and four pennies in her bank. How much money is there in the bank?
4. How many are five and four? 4 and 5?
5. Along the walk there are six maple trees and four elms. How many trees are there?
6. How many are six and four? 4 and 6?
7. James has seven pounds of flour in his basket. The basket weighs four pounds. How many pounds do both weigh?
8. How many are seven and four? 4 and 7?
9. Mary is eight years old. Her brother is four years older. How old is her brother?
10. How many are eight and four? 4 and 8?
11. If a book cost nine cents and a pad cost four cents, how much will both cost?
12. How many are nine and 4? 4 and 9?

Counting

1. Count by 2's to twenty. By 3's to eighteen. By 4's to twenty. By 5's to ninety. By 10's to ninety.
2. Count by 2's to eight, then by 4's to twenty.
3. Count by 3's to fifteen, then by 5's to forty.

Adding by Fives

1. A boy has five marbles in one hand and five in the other. How many has he in both hands?
2. How many are five and five?
3. One hen has six chickens, and another hen has five. How many chickens have both hens?
4. How many are six and five? 5 and 6?
5. It is now seven o'clock. What time will it be in five hours?
6. How many are seven and five? 5 and 7?
7. John picks eight quarts of berries and Thomas picks five quarts. How many quarts do both boys pick?
8. How many are eight and five? 5 and 8?
9. My peach tree is nine feet high and my pear tree is five feet higher. How high is the pear tree?
10. How many are nine and five? 5 and 9?
11. John took five steps to the right and then four steps straight ahead. How many steps did he take?
12. How many are four and five? 5 and four?

Blackboard Drills

Sight Drills

Give answers rapidly :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>
<i>a.</i>	1	2	3	4	5	6	7	8	9
	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
<i>b.</i>	1	2	3	4	5	6	7	8	9
	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>
<i>c.</i>	4	4	4	4	4	4	4	4	4
	<u>2</u>	<u>5</u>	<u>3'</u>	<u>6</u>	<u>1</u>	<u>7</u>	<u>9</u>	<u>0</u>	<u>8</u>
<i>d.</i>	5	5	5	5	5	5	5	5	5
	<u>7</u>	<u>1</u>	<u>6</u>	<u>8</u>	<u>2</u>	<u>4</u>	<u>9</u>	<u>0</u>	<u>3</u>

Measuring

1. Measure the length of a book in inches. The width.

2. Measure the length and the width of a pane of glass.

3. Find the length of the class room in feet. Its breadth in feet.

4. Find the length and the breadth of the school yard in feet.

5. Find the dimensions of the blackboard. Of the door. Of a window.

6. How many inches are there in a foot?

7. Find the number of inches in one half foot.

Sight Drills

Give sums. Add upward.

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
<i>a.</i>	4	4	4	4	4	4	4
	<u>14</u>	<u>24</u>	<u>34</u>	<u>44</u>	<u>54</u>	<u>64</u>	<u>74</u>
<i>b.</i>	6	6	6	6	6	6	6
	<u>22</u>	<u>32</u>	<u>42</u>	<u>52</u>	<u>62</u>	<u>72</u>	<u>82</u>
<i>c.</i>	8	8	8	8	8	8	8
	<u>11</u>	<u>21</u>	<u>31</u>	<u>41</u>	<u>51</u>	<u>61</u>	<u>71</u>
<i>d.</i>	7	7	7	7	7	7	7
	<u>32</u>	<u>42</u>	<u>52</u>	<u>62</u>	<u>72</u>	<u>82</u>	<u>92</u>
<i>e.</i>	8	7	6	5	4	3	2
	<u>21</u>	<u>31</u>	<u>41</u>	<u>51</u>	<u>61</u>	<u>71</u>	<u>81</u>
<i>f.</i>	2	3	4	5	6	7	6
	<u>32</u>	<u>42</u>	<u>52</u>	<u>62</u>	<u>72</u>	<u>82</u>	<u>92</u>
<i>g.</i>	4	5	6	3	2	1	5
	<u>23</u>	<u>53</u>	<u>43</u>	<u>73</u>	<u>93</u>	<u>63</u>	<u>33</u>

Say 15, 16; 25, 29; etc.

<i>h.</i>	1	4	3	1	4	4	3
	2	1	2	2	1	5	4
	<u>13</u>	<u>24</u>	<u>33</u>	<u>44</u>	<u>54</u>	<u>60</u>	<u>71</u>
<i>i.</i>	21	36	44	57	63	72	83
	7	2	1	1	2	4	5
	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>4</u>	<u>2</u>	<u>1</u>

Addition

Written Exercises

Add:

Before working these written exercises, give orally the sum of each column in an example, beginning with the ones' column.

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
<i>a.</i>	24 <u>62</u>	62 <u>36</u>	71 <u>26</u>	43 <u>34</u>	25 <u>52</u>	47 <u>22</u>	23 <u>64</u>
<i>b.</i>	61 <u>27</u>	43 <u>36</u>	18 <u>61</u>	35 <u>54</u>	63 <u>22</u>	54 <u>33</u>	47 <u>32</u>
<i>c.</i>	74 <u>15</u>	43 <u>45</u>	28 <u>71</u>	64 <u>35</u>	53 <u>45</u>	35 <u>24</u>	65 <u>33</u>
<i>d.</i>	11 15 <u>32</u>	95 2 <u>1</u>	63 31 <u>5</u>	50 14 <u>35</u>	32 32 <u>32</u>	32 23 <u>32</u>	23 24 <u>32</u>
<i>e.</i>	32 22 <u>4</u>	21 32 <u>23</u>	41 5 <u>13</u>	21 34 <u>4</u>	51 3 <u>12</u>	22 32 <u>42</u>	32 32 <u>23</u>
<i>f.</i>	12 52 <u>4</u>	31 41 <u>27</u>	41 33 <u>5</u>	42 16 <u>11</u>	23 4 <u>31</u>	53 3 <u>41</u>	32 33 <u>32</u>
<i>g.</i>	23 23 <u>23</u>	12 12 <u>12</u>	14 3 <u>21</u>	4 12 <u>61</u>	12 3 <u>62</u>	62 4 <u>3</u>	42 3 <u>24</u>

Written Problems

1. A boy earned thirty cents, twenty-five cents, and three cents. How much did he earn?

PROCESS	30c.
Write the numbers under each other, placing the ones' figures of each in a row. Write under each column its sum.	25
	<u>3</u>
	Ans. 58c.

2. Add forty cents, thirteen cents, and six cents.

To save unnecessary repetition, write c. but once in the example and again in the answer.

c. stands for cents.

40c.
13
6
Ans. 59c.

The sign of addition is +, called *plus*.

3. $31 + 42 + 3 + 1$.

4. $22 + 33 + 14$.

5. Twenty-five boys, plus twelve boys, plus two boys.

6. Ten cows, plus twenty-six cows, plus three cows.

7. A farmer has twenty-four cows in one field and fourteen in another field. How many cows has he in both fields?

8. Mr. Smith sold eighteen pies Monday and eleven Tuesday. How many did he sell in the two days?

9. A boy paid twenty-five cents for a ball and twelve cents for a bat. How much did he pay for both?

Making Change

Let one pupil represent a storekeeper and another a customer. The latter announces the total of his purchase, giving money to the former, who then hands over the change. The customer satisfies himself of the correctness of the latter, stating its amount. He then becomes the storekeeper and a third pupil becomes a customer.

Make change in the business way. If a half-dollar is given for a thirty-eight cent purchase, the storekeeper hands two cents, saying "thirty-eight, forty"; then a dime, saying "fifty."

Make change for the following purchases :

1. Amount of purchase, 6 cents. Sum given, 25 cents.

2. Amount of purchase, 43 cents. Sum given, 50 cents.

3. Amount of purchase, 11 cents. Sum given, 25 cents.

4. Amount of purchase, 29 cents. Sum given, 35 cents.

5. Amount of purchase, 68 cents. Sum given, 75 cents.

6. Amount of purchase, 8 cents. Sum given, 50 cents.

7. Amount of purchase, 17 cents. Sum given, 25 cents.

8. Amount of purchase, 3 cents. Sum given, 25 cents.

9. Amount of purchase, 27 cents. Sum given, 30 cents.

Subtraction. — Preparatory Exercises

1. If John needs 10 cents for a ball and he already has 5 cents, how many more cents does he require?

2. What number added to 7 will make 14?

3. A boy placed 9 marbles in two piles, one of which contained 5 marbles. How many were there in the other pile?

4. In how many years will a 5-year old girl be 8 years old?

5. A man is making a trip of 6 miles. If he has gone 2 miles already, how many miles has he still to go?

6. Mabel and Samuel together picked 8 quarts of berries. If Samuel picked 3 quarts, how many quarts did Mabel pick?

7. Nine boys are required for a baseball team. Only six have been chosen. How many more must they have?

8. If I buy 7 cents' worth of candy and give the storekeeper a dime, how much change should I receive?

9. There were 10 trees in a grove. After 3 were cut down, how many were left standing?

10. William rode 12 miles in an automobile. How many more miles did he ride than Edwin, who rode only 8 miles?

Drill Exercises

Tell the number that must be added to the lower one to make the upper one:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>
<i>a.</i>	9	8	2	9	3	7	4	9	8
	<u>-1</u>	<u>-7</u>	<u>-1</u>	<u>-8</u>	<u>-1</u>	<u>-6</u>	<u>-2</u>	<u>-6</u>	<u>-1</u>
<i>b.</i>	7	9	3	8	5	6	9	5	4
	<u>-1</u>	<u>-7</u>	<u>-2</u>	<u>-6</u>	<u>-4</u>	<u>-3</u>	<u>-2</u>	<u>-1</u>	<u>-3</u>
<i>c.</i>	9	7	6	8	4	7	6	8	9
	<u>-3</u>	<u>-5</u>	<u>-1</u>	<u>-5</u>	<u>-1</u>	<u>-2</u>	<u>-5</u>	<u>-2</u>	<u>-5</u>
<i>d.</i>	5	7	8	6	7	5	6	8	9
	<u>-2</u>	<u>-3</u>	<u>-4</u>	<u>-2</u>	<u>-4</u>	<u>-3</u>	<u>-4</u>	<u>-3</u>	<u>-4</u>

The sign of subtraction is $-$, called *minus*.

Subtraction

1. From 86 take 32.

PROCESS

Write 32 under 86, placing the ones' figures of both in the same column. Begin at the ones' column and think 2 and 4 (writing 4) are 6, 3 and 5 (writing 5) are 8.

86
32
 54 *Ans.*

Written Exercises

The answer in subtraction is called the *remainder*.

Find remainders:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>
<i>a.</i>	88 <u>-41</u>	59 <u>-34</u>	78 <u>-15</u>	49 <u>-28</u>	76 <u>-33</u>	63 <u>-41</u>
<i>b.</i>	46 <u>-15</u>	55 <u>-24</u>	67 <u>-36</u>	88 <u>-75</u>	89 <u>-46</u>	54 <u>-32</u>
<i>c.</i>	79 <u>-23</u>	58 <u>-32</u>	62 <u>-31</u>	85 <u>-41</u>	93 <u>-52</u>	87 <u>-63</u>
<i>d.</i>	45 <u>-44</u>	86 <u>-21</u>	66 <u>-45</u>	67 <u>-33</u>	64 <u>-22</u>	77 <u>-32</u>
<i>e.</i>	56 <u>-32</u>	47 <u>-41</u>	83 <u>-32</u>	78 <u>-51</u>	99 <u>-34</u>	65 <u>-44</u>
<i>f.</i>	63 <u>-42</u>	75 <u>-31</u>	96 <u>-43</u>	48 <u>-25</u>	84 <u>-52</u>	97 <u>-23</u>

Addition and Subtraction

Sight Exercises

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
<i>a.</i>	17 <u>+4</u>	21 <u>-4</u>	21 <u>-17</u>	32 <u>+5</u>	37 <u>-32</u>	37 <u>-5</u>	20 <u>-6</u>
<i>b.</i>	12 <u>+7</u>	19 <u>-7</u>	19 <u>-12</u>	11 <u>+8</u>	19 <u>-8</u>	19 <u>-11</u>	19 <u>+6</u>

Oral Problems

1. If John spends 5 cents out of a dime, how much change does he get?
2. There were 14 pears on a branch. How many were there after Mary picked off 7?
3. A boy had 9 marbles. How many had he after losing 4 of them?
4. A girl is 8 years old. How old was she 3 years ago?

Oral Drills

The sign of equality is $=$, called *equals*.

$13 + 4 = 17$ means 13 plus 4 equals 17. It may be read "13 and 4 are 17."

$17 - 4 = 13$ means 17 minus 4 equals 13. It may be read "17 less 4 are 13."

Give answers:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i> $14 + 4 = ?$	$18 - 14 = ?$	$18 - 4 = ?$	$24 + 4 = ?$
<i>b.</i> $13 + 6 = ?$	$19 - 13 = ?$	$19 - 6 = ?$	$43 + 6 = ?$
<i>c.</i> $11 + 3 = ?$	$14 - 11 = ?$	$14 - 3 = ?$	$61 + 3 = ?$
<i>d.</i> $12 + 5 = ?$	$17 - 12 = ?$	$17 - 5 = ?$	$32 + 5 = ?$
<i>e.</i> $15 + 2 = ?$	$18 - 16 = ?$	$18 - 2 = ?$	$75 + 2 = ?$
<i>f.</i> $10 + 9 = ?$	$19 - 10 = ?$	$19 - 9 = ?$	$50 + 9 = ?$
<i>g.</i> $14 + 3 = ?$	$17 - 14 = ?$	$17 - 3 = ?$	$84 + 3 = ?$
<i>h.</i> $16 + 2 = ?$	$18 - 16 = ?$	$18 - 2 = ?$	$26 + 2 = ?$
<i>i.</i> $12 + 7 = ?$	$19 - 12 = ?$	$19 - 7 = ?$	$92 + 7 = ?$

Addition and Subtraction**Oral Problems**

1. In an orchard there are 11 trees in the first row and 10 trees in the second. How many are there in both rows?

2. After plowing 36 acres how many acres must Mr. Jones plow to finish a 40-acre field?

3. I bought goods amounting to 42 cents and received 8 cents in change. How much did I hand the storekeeper?

4. A girl has 44 cents. How many more cents does she need in order to buy a 50-cent doll?

5. There are 18 yards of cloth in one roll and 10 yards in another. How many yards are there in both rolls?

6. After selling 22 dozen eggs, a grocer has 7 dozen left. How many dozen did he have at first?

7. Edward has 24 marbles and Arthur has 6 more than Edward. How many has Arthur?

8. Sarah has 26 cherries. How many will she have if she gives 10 to Jane?

9. Frank is 16 years old. In how many years will he be 21?

10. A boy picked 27 quarts of berries. How many quarts will he have after selling 19?

11. Mr. Jones is 25 years old. How old was he 9 years ago?

Written Problems

1. In an orchard there are 26 trees in the first row and 31 trees in the second row. How many are there in both rows?

2. After cutting 24 acres of wheat, how many more acres will Mr. Wise have to cut to finish a 45-acre field?

3. I bought goods amounting to 52 cents and received 23 cents in change. How much did I hand the storekeeper?

4. A boy has 62 cents. How many more cents does he require in order to buy a 75-cent baseball?

5. There are 23 yards of silk in one roll and 25 yards in another. How many yards are there in both rolls?

6. After selling 22 dozen eggs, a grocer has 16 dozen left. How many dozen did he have at first?

7. Fred has 24 marbles, and George has 15 more than Fred. How many has George?

8. Minnie has 26 cherries. How many will she have if she gives 13 to her brother?

9. Robert is 11 years old. In how many years will he be 27?

10. A girl picked 36 quarts of berries. How many quarts will she have after selling 25?

11. Mr. Smith is 38 years old. How old was he 17 years ago?

Notation and Numeration

One hundred is written 100. Two hundred is written 200. Three hundred, 300.

1. Write in figures (a) four hundred. (b) Five hundred. (c) Six hundred. (d) Seven hundred.

One hundred one is written 101.

2. Write in figures (a) one hundred three. (b) One hundred four. (c) One hundred five. (d) One hundred six. (e) One hundred seven.

One hundred ten is written 110. Two hundred twenty-five is written 225.

3. Write in figures:

a. One hundred twenty. Five hundred thirty-one.

b. Three hundred one. Seven hundred eighty-four.

4. Read the following:

a. 111	202	317	496	500
--------	-----	-----	-----	-----

b. 630	782	867	999	840
--------	-----	-----	-----	-----

In writing *hundreds*, three figures are used. The right-hand figure is called the *ones'* figure, the next is called the *tens'* figure, and the left-hand one is called the *hundreds'* figure.

5. Write in figures:

a. One hundred ninety. Five hundred twenty-two.

b. Two hundred seventy. Six hundred seventy-three.

Adding by 6's. By 7's.

1. There are 6 houses on one side of the street and 6 houses on the other. How many houses are there on both sides?



2. How many are 6 and 6?

3. After spending 7 cents, a girl has 6 cents left. How many cents did she have at first?

4. How many are 6 and 7?

5. Charles has saved 8 cents. He needs 6 cents more to buy a book. How much does the book cost?

6. How many are 6 and 8?

7. If I pick 9 roses, there will be 6 still on the bush. How many are there on the bush?

8. How many are 6 and 9?

9. In a class there are 7 boys and 7 girls. How many pupils are in the class?

10. How many are 7 and 7?

11. A pole was cut into two pieces, one 8 feet long and the other 7 feet long. How long was the pole at first?

12. How many are 7 and 8?

13. After giving 9 cherries to his sister, a boy has 7 left. How many cherries had he?

14. How many are 7 and 9?

Adding by 8's. By 9's

1. How many pies are 8 pies and 8 pies?
2. There are 9 cars in one train and 8 in another.
How many cars are there in both?
3. How many are 8 and 9?
4. In a game of ball there are 9 boys on one side and 9 on the other. How many are there on both sides?

Sight Drills

Give sums:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>
<i>a.</i>	6	7	8	9	7	8	9	8
	<u>6</u>	<u>6</u>	<u>6</u>	<u>6</u>	<u>7</u>	<u>7</u>	<u>7</u>	<u>7</u>
<i>b.</i>	6	6	6	7	7	8	9	9
	<u>7</u>	<u>8</u>	<u>9</u>	<u>8</u>	<u>9</u>	<u>9</u>	<u>8</u>	<u>9</u>

Sight Exercises

Add the following:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	20	25	20	25	20
	<u>20</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>30</u>
<i>b.</i>	35	30	30	40	20
	<u>10</u>	<u>15</u>	<u>20</u>	<u>20</u>	<u>40</u>
<i>c.</i>	15	40	15	25	15
	<u>40</u>	<u>15</u>	<u>20</u>	<u>40</u>	<u>30</u>
<i>d.</i>	30	40	50	60	70
	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>70</u>

Written Exercises

1. A rope was cut into three pieces 42, 63, and 24 ft. long. What was the length of the original rope?

PROCESS		42 ft.
Begin at the bottom.		63
Think 7 ($4 + 3$), 9; write 9. Think		24
8 ($2 + 6$), 12; write 12.		<u>Ans.</u> 129 ft.

2. Add:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	33	40	70	92	75
	20	63	80	80	3
	<u>54</u>	<u>25</u>	<u>3</u>	<u>16</u>	<u>61</u>
<i>b.</i>	64	27	33	40	3
	14	91	4	73	93
	<u>80</u>	<u>1</u>	<u>81</u>	<u>25</u>	<u>93</u>
<i>c.</i>	102	122	306	5	620
	203	122	50	203	113
	<u>10</u>	<u>122</u>	<u>401</u>	<u>30</u>	<u>204</u>
<i>d.</i>	620	90	140	30	120
	61	305	200	304	302
	<u>3</u>	<u>402</u>	<u>24</u>	<u>43</u>	<u>416</u>
<i>e.</i>	234	82	311	232	13
	40	105	25	32	143
	<u>121</u>	<u>12</u>	<u>123</u>	<u>232</u>	<u>143</u>

Addition with Carrying**3. Add 53, 136, 78, and 684.**

PROCESS		53
Begin with the ones' column.		136
Think 12 ($4 + 8$), 18, 21; write 1 and		78
carry 2. Think 10 ($2 + 8$), 17, 20, 25;		684
write 5 and carry 2. Think 8 ($2 + 6$), 9;		
write 9.		<i>Ans.</i> 951

4. Find sums :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	64	20	23	16	5
	<u>33</u>	<u>15</u>	<u>64</u>	<u>5</u>	<u>23</u>
<i>b.</i>	127	357	227	117	215
	26	14	7	119	8
	<u>25</u>	<u>2</u>	<u>321</u>	<u>103</u>	<u>342</u>
<i>c.</i>	140	27	33	25	32
	56	18	33	15	359
	<u>4</u>	<u>9</u>	<u>234</u>	<u>8</u>	<u>80</u>
<i>d.</i>	123	234	345	456	203
	47	58	207	345	88
	<u>6</u>	<u>9</u>	<u>163</u>	<u>20</u>	<u>8</u>
<i>e.</i>	449	909	175	473	219
	81	44	184	250	62
	314	30	400	26	105
	<u>5</u>	<u>16</u>	<u>37</u>	<u>105</u>	<u>30</u>

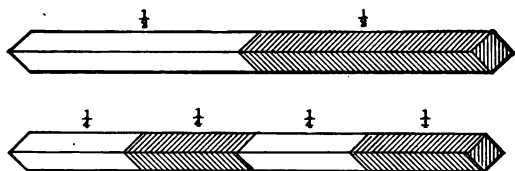
Testing Results

5. Add 278, 166, 37, and 69.

TEST	
After obtaining the sum by adding the columns upward, test the result by adding the columns downward, thus: 14, 21, 30; 10, 16, 19, 25; 4, 5.	278
	166
	37
	<u>69</u>
	<i>Ans.</i> 550

6. Find sums. Test:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	35	160	313	464	7
	323	48	46	203	322
	<u>150</u>	<u>204</u>	<u>65</u>	<u>45</u>	<u>48</u>
<i>b.</i>	106	220	27	423	152
	38	417	341	240	236
	23	75	35	86	324
	<u>400</u>	<u>130</u>	<u>305</u>	<u>100</u>	<u>88</u>
<i>c.</i>	606	108	22	40	200
	70	75	123	38	106
	147	6	34	50	84
	1	201	5	527	40
	<u>32</u>	<u>2</u>	<u>580</u>	<u>44</u>	<u>35</u>
<i>d.</i>	26 + 26 + 26 + 26.				
<i>e.</i>	45 + 45 + 45 + 25.				
<i>f.</i>	34 + 26 + 101 + 5.				
<i>g.</i>	4 + 89 + 25 + 103.				
<i>h.</i>	34 + 605 + 21 + 83.				
<i>i.</i>	210 + 35 + 406 + 54.				
<i>j.</i>	25 + 27 + 320 + 105.				
<i>k.</i>	84 + 106 + 50 + 19.				

One Half. One Quarter

One half is written $\frac{1}{2}$. One quarter is written $\frac{1}{4}$.

Fold circles, squares, etc., to show that a half is one of the two equal parts of a thing, and that a quarter is one of its four equal parts.

**Oral Examples**

1. How many halves in a pie?
How many quarters?
2. If a boy eats one quarter of a pie, how many quarters are left?
3. How many quarters of a pie are there in half a pie?
4. If a half of a pie costs 10 cents, what is the cost of the whole pie?
5. Find the cost of a quarter of a pie when a half pie costs 10 cents.
6. When milk costs 6 cents a quart, what does a pint cost?
7. There are 12 eggs in a dozen; how many eggs are there in a dozen and a half?

Roman Numbers

Letters are sometimes used to express numbers, especially in clocks and watches, also in chapters of books, etc.

I represents 1

II represents 2

III represents 3

IV represents 4

V represents 5

VI represents 6

VII represents 7

VIII represents 8

IX represents 9

X represents 10

XI represents 11

XII represents 12

On the face of a clock IIII is used to represent 4.

Telling Time

1. If the minute hand goes 12 spaces in an hour, how many spaces does it go in one half hour?

2. What time is it when the minute hand points to XII and the hour hand to IIII?

3. Tell the time when the minute hand is at VI and the hour hand is halfway between II and III.

4. When it is a quarter-past six, where is the minute hand? The hour hand?

5. When it is a quarter to one, where is the minute hand? The hour hand?

6. What is $\frac{1}{2}$ of 12? $\frac{1}{4}$ of 12?

Addition and Subtraction**Oral Problems**

1. A man had 50 bushels of tomatoes. He sold all but 4 bushels. How many bushels did he sell?

2. A girl had 50 cents. How many cents had she after spending 41 cents?

3. A cheese weighed 45 pounds and the box weighed 10 pounds. How many pounds did both weigh?

4. A boy had 36 firecrackers after he had shot off 9. How many had he at first?

5. I gave the grocer 75 cents and he gave me 9 cents change. What did the goods cost?

6. A telegraph pole is 24 feet above the ground and 6 feet in the ground. How long is the pole?

7. There are 15 flowers on one bush and 8 on another. How many are there on both?

8. How many days are there from December 15 to December 25?

9. A farmer has 42 sheep. How many more must he buy in order to have 50?

10. Find the total cost of 28 cents' worth of cake and 9 cents' worth of candy.

11. One day a boy rode to a town 25 miles distant and back again. How far did he ride?

Written Problems

1. A man had 75 bushels of potatoes. He used 21 bushels and sold the rest. How many bushels did he sell?

2. A boy had 75 cents. How many cents had he after spending 33 cents?

3. A cheese weighed 48 pounds and the box weighed 12 pounds. What was the weight of both?

4. A girl had 36 cherries after giving 36 to her brother. How many did she have at first?

5. I gave the baker 25 cents and he gave me 11 cents change. What did the goods cost?

6. A flag pole is 38 feet above the ground and 12 feet in the ground. How long is it?

7. There are 37 roses on one bush and 29 on another. How many are there on both?

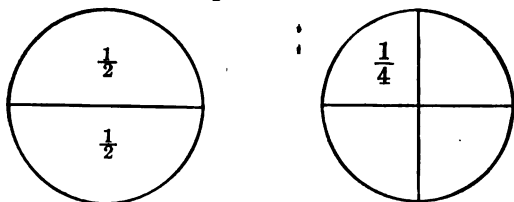
8. How many days are there from March 13 to March 29?

9. A farmer has 24 sheep. How many does he need in order to have 37?

10. What is the total cost of 28 cents' worth of coffee and 22 cents' worth of sugar?

11. A city is 48 miles away. How many miles does a person ride in going and returning?



Equal Parts

1. Fold a paper circle into two equal parts. What is each part called? One half is written $\frac{1}{2}$.
2. Fold a paper circle into four equal parts. What is each part called? One fourth is written $\frac{1}{4}$.
3. Fold a paper square into three equal parts. Each part is called one third. One third is written $\frac{1}{3}$.
4. Fold a paper square into six equal parts. Each part is called one sixth. One sixth is written $\frac{1}{6}$.
5. How many thirds are there in a pie? How many sixths?
6. How many sixths in one half a pie? In one third of a pie?

Quart and Peck

NOTE. The pupil should discover by measuring that there are 8 quarts in a peck.

1. How many quarts are there in a peck?
2. Change 2 pecks to quarts.
3. Change 16 quarts to pecks.
4. If I feed a quart of grain every day to my chickens, how long will a peck last?
5. If I feed them 2 quarts of grain every day how long will a peck last?

Subtraction

Written Exercises

1. Find the difference between 90 and 74.

PROCESS

$$\begin{array}{r} 90 \\ -74 \\ \hline 16 \end{array}$$
Ans. Write the larger number, 90, above the smaller. Begin at the ones' column. Since 4 is greater than 0, think 4 and 6 (writing 6) are 10. Carry 1 to 7 which makes 8. Think 8 and 1 (writing 1) are 9.

Test by adding 16 and 74 upward: thinking 6 and 4, 2 (carrying 1) and 7.

2. Subtract. Test:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	$\begin{array}{r} 31 \\ -19 \\ \hline \end{array}$	$\begin{array}{r} 46 \\ -27 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ -79 \\ \hline \end{array}$	$\begin{array}{r} 84 \\ -69 \\ \hline \end{array}$	$\begin{array}{r} 63 \\ -48 \\ \hline \end{array}$
<i>b.</i>	$\begin{array}{r} 50 \\ -25 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ -75 \\ \hline \end{array}$	$\begin{array}{r} 83 \\ -26 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ -15 \\ \hline \end{array}$	$\begin{array}{r} 63 \\ -35 \\ \hline \end{array}$
<i>c.</i>	$\begin{array}{r} 63 \\ -24 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ -65 \\ \hline \end{array}$	$\begin{array}{r} 84 \\ -15 \\ \hline \end{array}$	$\begin{array}{r} 72 \\ -36 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ -26 \\ \hline \end{array}$
<i>d.</i>	$\begin{array}{r} 61 \\ -19 \\ \hline \end{array}$	$\begin{array}{r} 66 \\ -27 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ -19 \\ \hline \end{array}$	$\begin{array}{r} 81 \\ -69 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ -15 \\ \hline \end{array}$
<i>e.</i>	$\begin{array}{r} 81 \\ -29 \\ \hline \end{array}$	$\begin{array}{r} 76 \\ -27 \\ \hline \end{array}$	$\begin{array}{r} 56 \\ -28 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ -25 \\ \hline \end{array}$	$\begin{array}{r} 82 \\ -36 \\ \hline \end{array}$
<i>f.</i>	$\begin{array}{r} 93 \\ -46 \\ \hline \end{array}$	$\begin{array}{r} 75 \\ -38 \\ \hline \end{array}$	$\begin{array}{r} 82 \\ -26 \\ \hline \end{array}$	$\begin{array}{r} 61 \\ -38 \\ \hline \end{array}$	$\begin{array}{r} 54 \\ -27 \\ \hline \end{array}$

3. From 318 take 276.

PROCESS	
$\begin{array}{r} 318 \\ -276 \\ \hline 42 \end{array}$	<p>Think 6 and 2 (writing 2) are 8. Think 7 and 4 (writing 4) are 11. Carry 1 to 2, which makes 3. As this is the same as the upper number, do not write anything under the hundreds' column.</p>

4. Subtract:

	A	B	C	D	E
a.	$\begin{array}{r} 239 \\ -156 \\ \hline \end{array}$	$\begin{array}{r} 327 \\ -246 \\ \hline \end{array}$	$\begin{array}{r} 479 \\ -382 \\ \hline \end{array}$	$\begin{array}{r} 569 \\ -481 \\ \hline \end{array}$	$\begin{array}{r} 648 \\ -560 \\ \hline \end{array}$
b.	$\begin{array}{r} 725 \\ -654 \\ \hline \end{array}$	$\begin{array}{r} 878 \\ -792 \\ \hline \end{array}$	$\begin{array}{r} 915 \\ -830 \\ \hline \end{array}$	$\begin{array}{r} 879 \\ -693 \\ \hline \end{array}$	$\begin{array}{r} 712 \\ -651 \\ \hline \end{array}$
c.	$\begin{array}{r} 625 \\ -571 \\ \hline \end{array}$	$\begin{array}{r} 568 \\ -475 \\ \hline \end{array}$	$\begin{array}{r} 449 \\ -365 \\ \hline \end{array}$	$\begin{array}{r} 316 \\ -294 \\ \hline \end{array}$	$\begin{array}{r} 229 \\ -195 \\ \hline \end{array}$

5. Subtract 92 from 500.

PROCESS	
$\begin{array}{r} 500 \\ -92 \\ \hline 408 \end{array}$	<p>Think 2 and 8 (writing 8) are 10. Carry 1 to 9, which makes 10. Think 10 and 0 (writing 0) are 10. Carry 1. Think 1 and 4 (writing 4) are 5.</p>

	A	B	C	D	E
a.	$\begin{array}{r} 900 \\ -75 \\ \hline \end{array}$	$\begin{array}{r} 800 \\ -63 \\ \hline \end{array}$	$\begin{array}{r} 700 \\ -37 \\ \hline \end{array}$	$\begin{array}{r} 600 \\ -44 \\ \hline \end{array}$	$\begin{array}{r} 500 \\ -88 \\ \hline \end{array}$
b.	$\begin{array}{r} 311 \\ -91 \\ \hline \end{array}$	$\begin{array}{r} 311 \\ -291 \\ \hline \end{array}$	$\begin{array}{r} 100 \\ -50 \\ \hline \end{array}$	$\begin{array}{r} 100 \\ -95 \\ \hline \end{array}$	$\begin{array}{r} 100 \\ -15 \\ \hline \end{array}$

Review Exercises

In addition and in subtraction the numbers have names, as follows:

Addition			Subtraction		
	256	<i>Addend</i>		512	<i>Minuend</i>
	+ 256	<i>Addend</i>		- 256	<i>Subtrahend</i>
<i>Ans.</i>	<u>512</u>	<i>Sum</i>	<i>Ans.</i>	<u>256</u>	<i>Difference</i>

In subtraction the difference is also called the *remainder*.

1. Find sums. Test:

a. $198 + 73 + 206 + 5 + 382$.

b. $46 + 514 + 103 + 8 + 29$.

c. $184 + 291 + 332 + 45 + 9$.

d. $55 + 326 + 84 + 173 + 270$.

e. $321 + 78 + 97 + 84 + 259$.

2. Find differences. Test:

a. $321 - 259$. b. $291 - 184$. c. $915 - 876$.

d. $840 - 326$. e. $665 - 486$. f. $824 - 632$.

g. $270 - 73$. h. $533 - 486$. i. $733 - 543$.

j. $514 - 29$. k. $910 - 707$. l. $642 - 438$.

m. $382 - 206$. n. $623 - 341$. o. $551 - 275$.

Written Problems

1. A girl has 58 cents. She needs 17 cents more to buy a doll. What is the price of the doll?

2. A farmer raised 75 loads of hay. He used 17 loads and sold the rest. How many loads did he sell?

3. A boy had 75 cents. How much had he after spending 50 cents?

4. When a boy saves 16 cents more, he can buy a 75-cent pair of gloves. How much has he saved already?

5. How much older is a man 50 years old than his son who is 16?

6. How many days from May 14 to Decoration Day, May 30?

7. Mr. Smith is 18 years younger than Mr. Brown, who is 41 years old. How old is Mr. Smith?

8. Jacob caught 17 fish and Horace caught 17 more than Jacob. How many did Horace catch?

9. Mrs. Jones is 27 years old. How old will she be 16 years from now?

10. Mr. Jones is 36 years old. How old was he 18 years ago?

11. A girl has 50 cents; how much will she have if she spends 26 cents?

SECTION II

Preliminary Exercises

1. Add the following :

1	2	3	4	5	6	7	8	9
<u>+1</u>	<u>+2</u>	<u>+3</u>	<u>+4</u>	<u>+5</u>	<u>+6</u>	<u>+7</u>	<u>+8</u>	<u>+9</u>

Instead of writing 1, 2, 3, 4, etc., twice, as examples in addition, they may be written as multiplication examples thus :

1	2	3	4	5	6	7	8	9
<u>× 2</u>	<u>× 2</u>	<u>× 2</u>	<u>× 2</u>	<u>× 2</u>	<u>× 2</u>	<u>× 2</u>	<u>× 2</u>	<u>× 2</u>

These are read 2 times 1, 2 times 2, 2 times 3, etc.

2. How many are 2 times 1? 2 times 2?
2 times 3? 2 times 4? 2 times 5? 2 times 6?
2 times 7? 2 times 8? 2 times 9?

The sign of multiplication is \times , called *times*.

3. Find the cost of 2 baseballs at 5 cents each.

If 1 baseball costs 5 cents 2 baseballs will cost
2 times 5 cents. *Ans.* 10 cents.

The answer in multiplication is called the *product*.

Written Exercises

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	201	211	212	221	213
	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$
<i>b.</i>	232	234	243	341	324
	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$

c. Add 206 and 206.

d. Multiply 206 by 2.

PROCESS

206		Think 2 times 6 are 12;	206
+ 206		write 2 and carry 1. Think	$\times 2$
<u>412</u>	<i>Ans.</i>	2 times 0 are 0; carrying 1	<u>412</u> <i>Ans.</i>
		makes 1; write 1. Think	
		2 times 2 are 4; write 4.	

<i>e.</i>	216	250	126	345	237
	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$
<i>f.</i>	450	307	208	109	245
	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$
<i>g.</i>	356	449	380	279	165
	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$
<i>h.</i>	259	316	478	156	209
	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$

Review

1. How many are $2+2+2$? Three 2's are how many? Two 3's are how many?
2. How many are $2+2+2+2$? Four 2's are how many? Two 4's are how many?
3. How many are $2+2+2+2+2$? Five 2's are how many? Two 5's are how many?
4. How many are six 2's? Two 6's?
5. How many are seven 2's? Two 7's?
6. How many are eight 2's? Two 8's?
7. How many are nine 2's? Two 9's?

Oral Problems

1. What is the cost of five 2-cent postage stamps?
2. How many legs have 8 birds?
3. James is 6 years old; his brother is twice as old. How old is his brother?
4. At 2 marbles for a cent, how many marbles can I buy for 6 cents?
5. Find the cost of 9 rockets at 2 cents each.
6. How many pints are there in 4 quarts?
7. How many cents are there in 2 dimes?
8. If a family uses 2 quarts of milk a day, how many quarts will be used in a week?
9. How many shoes in nine pairs?

Memorize the Following Tables

Two times 1 are 2	One time 2 is 2
Two times 2 are 4	Two times 2 are 4
Two times 3 are 6	Three times 2 are 6
Two times 4 are 8	Four times 2 are 8
Two times 5 are 10	Five times 2 are 10
Two times 6 are 12	Six times 2 are 12
Two times 7 are 14	Seven times 2 are 14
Two times 8 are 16	Eight times 2 are 16
Two times 9 are 18	Nine times 2 are 18

Written Exercises

Multiply :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	20 <u>× 3</u>	22 <u>× 4</u>	21 <u>× 5</u>	20 <u>× 6</u>	21 <u>× 7</u>
<i>b.</i>	20 <u>× 5</u>	21 <u>× 6</u>	22 <u>× 7</u>	12 <u>× 8</u>	21 <u>× 9</u>
<i>c.</i>	102 <u>× 3</u>	102 <u>× 4</u>	102 <u>× 5</u>	102 <u>× 6</u>	102 <u>× 7</u>
<i>d.</i>	102 <u>× 8</u>	102 <u>× 9</u>	112 <u>× 5</u>	112 <u>× 7</u>	112 <u>× 6</u>
<i>e.</i>	122 <u>× 6</u>	122 <u>× 7</u>	122 <u>× 5</u>	122 <u>× 4</u>	122 <u>× 3</u>

Dividing by 2

Preliminary Exercises

1. How many 2's are there (a) in 4? (b) In 2?
 (c) In 8? (d) In 0? (e) In 16? (f) In 10?
 (g) In 12? (h) In 14? (i) In 6? (j) In 18?

These examples may be written thus:

$$\begin{array}{cccccc}
 (a) & 2 \overline{)4} & (b) & 2 \overline{)2} & (c) & 2 \overline{)8} & (d) & 2 \overline{)0} & (e) & 2 \overline{)16} \\
 & ? & & ? & & ? & & ? & & ? \\
 (f) & 2 \overline{)10} & (g) & 2 \overline{)12} & (h) & 2 \overline{)14} & (i) & 2 \overline{)6} & (j) & 2 \overline{)18} \\
 & ? & & ? & & ? & & ? & & ?
 \end{array}$$

2. Give answers.

Oral Problems

- How many 2-cent postage stamps can I buy for 10 cents?
- William is 12 years old. He is twice as old as his brother. How old is his brother?
- How many 2-cent rockets can be bought for 18 cents?
- If 2 marbles cost 1 cent, how many cents will 12 marbles cost?
- How many quarts are there in 8 pints?
- In 16 shoes how many pairs?

Sight Exercises

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>
<i>a.</i>	$2 \overline{)44}$	$2 \overline{)48}$	$2 \overline{)42}$	$2 \overline{)46}$	$2 \overline{)60}$	$2 \overline{)66}$
<i>b.</i>	$2 \overline{)64}$	$2 \overline{)68}$	$2 \overline{)62}$	$2 \overline{)80}$	$2 \overline{)84}$	$2 \overline{)88}$

Written Exercises

1. Divide 608 by 2.

PROCESS

Begin at the hundreds' figure. Think 2 into 6 (goes) 3 times, and write 3 directly under the 6; think 2 into 0 (goes) 0 times, and write 0 directly under the 0; think 2 into 8 (goes) 4 times, and write 4 directly under the 8.

$$\begin{array}{r} 2 \overline{)608} \\ 304 \text{ Ans.} \end{array}$$

2. Divide:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a. $2 \overline{)264}$	$2 \overline{)668}$	$2 \overline{)482}$	$2 \overline{)864}$
b. $3 \overline{)360}$	$3 \overline{)666}$	$4 \overline{)484}$	$4 \overline{)888}$
c. $3 \overline{)660}$	$4 \overline{)840}$	$5 \overline{)555}$	$6 \overline{)666}$

3. Divide 186 by 2.

Since 1 does not contain 2, think 2 into 18 (goes) 9 times, write 9 under the 8, etc.

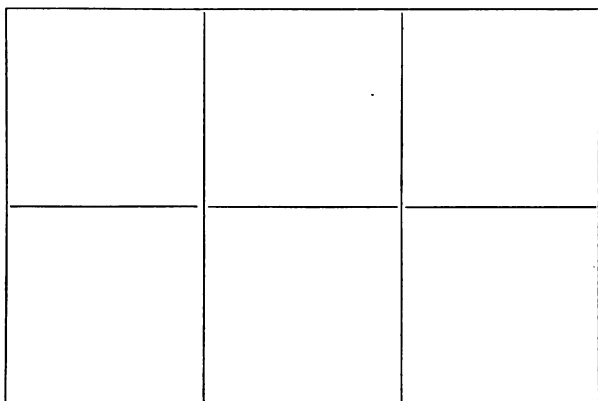
$$\begin{array}{r} 2 \overline{)186} \\ 93 \text{ Ans.} \end{array}$$

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a. $2 \overline{)126}$	$2 \overline{)148}$	$2 \overline{)160}$	$2 \overline{)184}$
b. $5 \overline{)105}$	$6 \overline{)126}$	$7 \overline{)147}$	$8 \overline{)168}$
c. $2 \overline{)104}$	$5 \overline{)100}$	$6 \overline{)120}$	$7 \overline{)140}$
d. $9 \overline{)189}$	$9 \overline{)999}$	$7 \overline{)777}$	$9 \overline{)180}$

Fractional Parts

1. Make a one-inch cardboard square. This contains 1 square inch.

2. Draw a rectangle 2 inches long, 1 inch wide. Divide it into one-inch squares. How many such squares does it contain?



3. Arrange 6 one-inch squares to form a rectangle 3 inches long, 2 inches wide. What part of the whole rectangle is the rectangle formed by a horizontal row of 3 squares? What part of the whole rectangle is the rectangle formed by a vertical row of 2 squares? What part of the whole rectangle is each square?

4. What part of 6 square inches is 1 square inch? What part of 6 is 3? What part of 6 is 2?

5. How many squares in $\frac{1}{2}$ of the rectangle? In $\frac{1}{3}$ of it? In $\frac{1}{6}$?

Oral Problems

1. What is the cost of $\frac{1}{2}$ pound of 20-cent coffee?
2. A boy has 15 packs of firecrackers. How many packs will he have after he has shot off 5 packs?
3. There are 14 boys and 11 girls in a class. How many pupils are there in the class?
4. A man has 62 apple trees and 53 peach trees. How many more apple trees has he than peach trees?
5. In a class of 24 pupils the number of boys and of girls is the same. How many are there of each?
6. How many oranges are 2 dozen oranges?
7. How many ears of corn are there on 9 stalks if there are 2 ears on each stalk?

Written Problems

1. What is the cost of $\frac{1}{2}$ yard of 70-cent silk?
2. A man has 50 packs of firecrackers. How many will he have after he sells 15 packs?
3. There are 24 boys and 26 girls in the park. How many children are there in the park?
4. A man has 62 apple trees and 26 peach trees. How many more apple trees has he than peach trees?
5. There are 60 trees in 5 equal rows. How many trees are there in each row?
6. How many oranges are 7 dozen oranges?
7. How many ears of corn are there on 19 stalks if there are 2 on each stalk?

Multiplying by 3**Preliminary Exercises**

1. Add the following:

3	4	5	6	7	8	9
3	4	5	6	7	8	9
<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>

2. Copy the following, and fill the blanks. Learn the table.

3 times 1 are—. 3 times 4 are—. 3 times 7 are—.
 3 times 2 are—. 3 times 5 are—. 3 times 8 are—.
 3 times 3 are—. 3 times 6 are—. 3 times 9 are—.

Blackboard Exercises

Give products:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>
<i>a.</i>	30	40	50	60	70	80
	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>
<i>b.</i>	90	81	72	63	52	41
	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>

Written Exercises

Multiply:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	104	205	306	207	308
	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>
<i>b.</i>	139	228	317	246	154
	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>	<u>× 3</u>

Dividing by 3

Drill Exercises

Give quotients :

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i> $3 \overline{)9}$	$3 \overline{)21}$	$3 \overline{)6}$	$3 \overline{)15}$	$3 \overline{)12}$
<i>b.</i> $3 \overline{)3}$	$3 \overline{)27}$	$3 \overline{)0}$	$3 \overline{)18}$	$3 \overline{)24}$
<i>c.</i> $3 \overline{)36}$	$3 \overline{)30}$	$3 \overline{)33}$	$3 \overline{)39}$	$3 \overline{)60}$

Written Exercises

Find answers :

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i> 283×3	325×3	187×3	267×3
<i>b.</i> 103×6	123×7	121×8	103×9
<i>c.</i> 332×3	326×3	288×3	157×3
<i>d.</i> 123×5	213×4	123×8	102×9
<i>e.</i> $963 \div 3$	$129 \div 3$	$669 \div 3$	$156 \div 3$
<i>f.</i> $124 \div 4$	$155 \div 5$	$186 \div 6$	$217 \div 7$
<i>g.</i> $273 \div 3$	$216 \div 3$	$249 \div 3$	$189 \div 3$
<i>h.</i> 156×3	236×3	284×3	296×3
<i>i.</i> $\frac{1}{2}$ of 86	$\frac{1}{3}$ of 96	$\frac{1}{4}$ of 84	$\frac{1}{8}$ of 88
<i>j.</i> $\frac{1}{4}$ of 88	$\frac{1}{3}$ of 63	$\frac{1}{2}$ of 82	$369 \div 3$

Oral Problems

1. If there are 8 desks in a row, how many desks are there in 3 rows?
2. A boy has 20 cherries. How many will he have after he gives 3 away?
3. At 3 for a cent what will be the cost of 15 marbles?
4. After selling 17 quarts of milk a man has 3 quarts left; how many quarts had he at first?
5. What does a man gain if he buys a cow for \$27 and sells it for \$30?
6. Find the cost of 3 pounds of sugar at 6 cents a pound.
7. At 2 cents a mile how far can I ride in a train for 20 cents?
8. A girl buys 21 cents' worth of bread. She gives the baker 25 cents. How much change does he give her?
9. How many days are there from December 21 to December 25?
10. At 3 cents each, how many pads can be bought for 15 cents?
11. Four years ago a boy was seven. How old is he now?
12. How many weeks are there in 21 days?

Written Problems

1. If there are 15 desks in a row how many desks are there in 3 rows?

2. A boy has 31 marbles. How many will he have if he gives 12 away?

3. At 3 for a cent what will be the cost of 69 marbles?

4. After selling 17 quarts of milk a man has 23 quarts left; how many quarts had he at first?

5. What does a man gain if he buys a cow for \$27 and sells it for \$41?

6. Find the cost of 3 pounds of lard at 15 cents a pound.

7. At 2 cents a mile how far can I ride in a train for 82 cents?

8. A girl buys 21 cents' worth of bread. She gives the baker 50 cents. How much change does he give her?

9. How many days are there from June 13 to June 30?

10. At 3 cents each how many pads can be bought for 39 cents?

11. Fourteen years ago a man was 26. How old is he now?

12. How many weeks are there in 147 days?

Multiplying by 4

1. Count by 4's to 40.

2. Copy the following and fill the blanks. Learn the table.

4 times 1 are—. 4 times 4 are—. 4 times 7 are—.
 4 times 2 are—. 4 times 5 are—. 4 times 8 are—.
 4 times 3 are—. 4 times 6 are—. 4 times 9 are—.

3. Multiply:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	14	24	34	44	234
	$\times 4$	$\times 4$	$\times 4$	$\times 4$	$\times 4$
<i>b.</i>	25	35	45	55	245
	$\times 4$	$\times 4$	$\times 4$	$\times 4$	$\times 4$
<i>c.</i>	36	46	56	66	156
	$\times 4$	$\times 4$	$\times 4$	$\times 4$	$\times 4$
<i>d.</i>	47	57	67	77	167
	$\times 4$	$\times 4$	$\times 4$	$\times 4$	$\times 4$
<i>e.</i>	58	68	78	88	188
	$\times 4$	$\times 4$	$\times 4$	$\times 4$	$\times 4$
<i>f.</i>	69	79	89	99	199
	$\times 4$	$\times 4$	$\times 4$	$\times 4$	$\times 4$

Dividing by 4

Drill Exercises

Give quotients :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	$4 \overline{)20}$	$4 \overline{)28}$	$4 \overline{)0}$	$4 \overline{)24}$	$4 \overline{)8}$
<i>b.</i>	$4 \overline{)12}$	$4 \overline{)36}$	$4 \overline{)32}$	$4 \overline{)16}$	$4 \overline{)4}$
<i>c.</i>	$4 \overline{)40}$	$4 \overline{)44}$	$4 \overline{)48}$		

Written Exercises

Find answers :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	183×4	245×4	187×4	167×4
<i>b.</i>	104×6	134×7	122×8	104×9
<i>c.</i>	232×4	236×4	188×4	157×4
<i>d.</i>	134×5	124×6	134×7	123×8
<i>e.</i>	$364 \div 4$	$244 \div 4$	$288 \div 4$	$328 \div 4$
<i>f.</i>	$129 \div 3$	$200 \div 5$	$246 \div 6$	$280 \div 7$
<i>g.</i>	$204 \div 4$	$848 \div 4$	$168 \div 4$	$128 \div 4$
<i>h.</i>	156×4	196×4	184×4	246×4
<i>i.</i>	$\frac{1}{2}$ of 168	$\frac{1}{3}$ of 126	$\frac{1}{8}$ of 248	$\frac{1}{6}$ of 240
<i>j.</i>	$\frac{1}{4}$ of 296	$\frac{1}{6}$ of 336	$\frac{1}{2}$ of 284	$\frac{1}{8}$ of 168

Oral Problems

1. When $\frac{1}{2}$ pound of candy costs 10 cents, what is the cost of a pound?
2. When there are 8 desks in each row, how many desks are there in 4 rows?
3. A woman had 40 chickens; how many had she after selling 32?
4. Find the cost of $\frac{1}{4}$ yard of linen at 28 cents per yard.
5. At 4 for a dollar, how many dollars would 16 baseballs cost?
6. At 4 yards for a dollar, how many yards can be bought for \$5?
7. A boy earned 50 cents. He spent all but 7 cents. How much did he spend?
8. If a man saves \$8 each month, how much does he save in 4 months?
9. A farmer bought a cow for \$36 and sold it for \$4 more. How much did he get for it?
10. A girl divides a number by 4 and her answer is 8. What is the number?
11. A farmer had 42 sheep. How many would he have if he bought 8 more?
12. If 4 boys take 4 days to do a piece of work, how long would it take 1 boy to do it?

Written Problems

1. When $\frac{1}{2}$ pound of candy costs 16 cents, what is the cost of a pound?
2. When there are 13 desks in each row, how many desks are there in 4 rows?
3. A woman had 40 chickens; how many had she after selling 28?
4. Find the cost of $\frac{1}{4}$ yard of silk at 56 cents per yard.
5. At 4 for a dollar, how many dollars would 60 baseballs cost?
6. At 4 yards for a dollar, how many yards could be bought for \$12?
7. A boy earned 50 cents. He spent all but 27 cents. How much did he spend?
8. If a man saves \$15 each month, how much does he save in 4 months?
9. A man bought a cow for \$36 and sold it for \$14 more. How much did he get for it?
10. A girl divides a number by 4 and her answer is 16. What is the number?
11. A farmer has 42 sheep. How many would he have if he bought 18 more?
12. If 4 men take 16 days to do a piece of work, how long would it take 1 man to do it?

Multiplying by 5

1. Count by 5's to 100.

2. Copy the following and fill the blanks. Learn the table:

5 times 1 are —. 5 times 4 are —. 5 times 7 are —.

5 times 2 are —. 5 times 5 are —. 5 times 8 are —.

5 times 3 are —. 5 times 6 are —. 5 times 9 are —.

3. Multiply:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	15 <u>× 5</u>	25 <u>× 5</u>	35 <u>× 5</u>	45 <u>× 5</u>	55 <u>× 5</u>
<i>b.</i>	26 <u>× 5</u>	36 <u>× 5</u>	46 <u>× 5</u>	56 <u>× 5</u>	66 <u>× 5</u>
<i>c.</i>	37 <u>× 5</u>	47 <u>× 5</u>	57 <u>× 5</u>	67 <u>× 5</u>	77 <u>× 5</u>
<i>d.</i>	48 <u>× 5</u>	58 <u>× 5</u>	68 <u>× 5</u>	78 <u>× 5</u>	88 <u>× 5</u>
<i>e.</i>	59 <u>× 5</u>	69 <u>× 5</u>	79 <u>× 5</u>	89 <u>× 5</u>	99 <u>× 5</u>
<i>f.</i>	155 <u>× 6</u>	135 <u>× 7</u>	105 <u>× 8</u>	105 <u>× 9</u>	115 <u>× 8</u>
<i>g.</i>	125 <u>× 7</u>	145 <u>× 6</u>	123 <u>× 7</u>	123 <u>× 8</u>	55 <u>× 9</u>

Oral Problems

1. A girl bought a hat for \$5. How much change would she receive if she gave the storekeeper a \$50 bill?

2. If a class spells 12 minutes a day, how many minutes does it spell in a week of 5 days?

3. A man divided 48 cherries equally among 4 boys. How many cherries did each receive?

4. Three boys have 20 marbles each. How many have they all together?

5. At 3 for a cent, how much would 30 peaches cost?

6. Out of a school of 90 pupils, 5 are absent. How many are present?

7. If a boy attended school 20 days each month for 4 months, how many days would he attend?

8. Mary has 12 nickels in her bank. How much money does that amount to?

9. How many \$5 bills will pay for a cow that costs \$60?

10. There are 4 houses in a row with 12 windows in each. How many windows are there in the 4 houses?

11. At 12 cents for $\frac{1}{2}$ pound of coffee, what is the price of a pound?

12. If a girl obtains the correct answers to 45 problems out of 50, how many has she failed to do correctly?

Written Problems

1. A customer bought a shawl for \$15 and gave the storekeeper a \$100 bill. How much change did she receive?

2. If a class spells 15 minutes a day, how many minutes does it spell in a week of 5 days?

3. A man divided 105 cherries equally among 5 boys. How many did each receive?

4. Henry, James, and Fred had 27 marbles each. How many did the three children have?

5. At 2 for a cent, how much would 68 peaches cost?

6. Out of a school of 90 pupils, 15 are absent because of a storm. How many are present?

7. If a girl attended school 19 days each month for 5 months, how many days would she attend?

8. Harry has 19 five-cent pieces in his bank. How much does that amount to?

9. A man buys a cow for \$100. How many \$5 bills will pay for the cow?

10. There are 5 houses in a row and each house has 16 windows. How many are there in the 5 houses?

11. At 48 cents for $\frac{1}{2}$ yard of silk, what is the price per yard?

12. A boy worked 50 examples. He obtained the correct answers to 39. How many were wrong?

13. How many pounds of candy are there in 28 boxes, each containing $\frac{1}{2}$ pound?

Pint, Quart, Gallon



1 Pint



1 Quart



1 Gallon

1. How many times will the gallon measure hold the contents of the quart measure?
2. How many quarts are there in a gallon?
3. How many pints are there in a gallon?
4. How many quarts of milk are there in a can of milk containing 10 gallons?
5. When a half pint of ice cream costs 10 cents, what is the cost of a pint?
6. How many pints are there in 2 quarts and 1 pint?
7. How many quarts are there in 3 gallons?
8. How many gallons are there in 16 quarts?
9. How many pints are there in 2 gallons?
10. Learn the following table:

Liquid Measure

TABLE

2 pints (pt.)	1 quart (qt.)
4 quarts	1 gallon (gal.)

Liquid measure is used in buying and selling liquids; such as milk, oil, sirup, etc., also ice cream.

Oral Problems

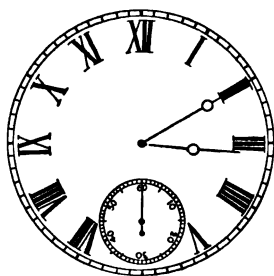
1. If I pay 5 cents for a quarter of a pound of candy, what is the price of a pound?
2. There are 16 ounces in a pound. How many ounces are there in a quarter of a pound?
3. If a man uses 28 quarts of oil in a year, how many gallons does he use?
4. At 4 cents per quart, what is the cost of a gallon of oil?
5. John has 36 cherries, James has 4 more than John. How many has James?
6. A farmer has 40 cows. How many will he have if he sells 4?
7. How many sheep at \$4 each can be bought for \$36?
8. What will 4 yards of 9-cent calico cost?
9. There are 36 trees in 4 equal rows. How many are there in each row?
10. If one quarter pound of tea costs 10 cents, what is the cost of one half pound?
11. How many tomato plants will be needed for 9 rows if 10 plants are needed for each row?
12. How many nickels make 20 cents?
13. A girl has in her bank a quarter, a dime, and a nickel. How many cents are there in her bank?
14. How many pints of milk will make 12 half-pint glasses of milk?

Written Problems

1. If I pay 15 cents for a quarter of a pound of tea, what is the price of a pound?
2. There are 144 pens in a gross. How many pens are there in a half a gross?
3. How many gallons are there in 84 quarts?
4. At 18 cents per quart, what will a gallon of paint cost?
5. Thomas has 36 cents; Martha has 24 cents more than Thomas. How much money has Martha?
6. A farmer has 60 sheep. How many will he have if he sells 36?
7. How many sheep at \$4 each can be bought for \$124?
8. What is the cost of 4 yards of dress goods at 16 cents a yard?
9. There are 88 trees in 4 equal rows. How many are there in each row?
10. If one quarter yard of silk costs 36 cents, what is the cost of one half yard?
11. How many cabbage plants are required for 4 rows if there are 23 plants in each row?
12. How many nickels make 155 cents?
13. How much money are a half dollar, a quarter, a dime, a nickel, and 6 cents?
14. How many pints of lemonade will make 48 half-pint glasses of lemonade?

Time

60 seconds (sec.)	1 minute (min.)
60 minutes	1 hour (hr.)
24 hours	1 day (da.)
7 days	1 week (wk.)



1. How many minutes in $\frac{1}{2}$ hour?
2. The minute hand takes 5 minutes to go from XII to I. How many minutes does it take to go from XII to VI?
3. When the minute hand is at I, it is 5 minutes after the hour. How many minutes is it after the hour when the minute hand points to V? To II? To III?
4. When the minute hand is at VII it is 25 minutes to the next hour. How many minutes to the next hour is it when the minute hand points to IX? To XI? To VIII? To X?
5. Where is the minute hand at 10 minutes after 3? At 20 minutes to 5?
6. What part of an hour space does the hour hand go in 30 minutes? In 15 minutes? In 20 minutes? In 10 minutes?

Roman Numbers

13	14	15	16	17	18	19	20
XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX

Notation and Numeration

1. One thousand is written 1,000. Two thousand is written 2,000.

2. Read: 3,000; 5,000; 7,000; 9,000.

3. Write in figures: four thousand; six thousand; eight thousand.

4. One thousand one is written 1,001. Two thousand six is written 2,006. Three thousand twenty is written 3,020. Six thousand five hundred thirty-six is written 6,536.

5. Write in figures: four thousand three hundred seventy-four; six thousand seven hundred; eight thousand ninety; one thousand sixty-two; seven thousand eight; two thousand five; nine thousand five hundred ninety; one thousand three; five thousand seventy-five; three thousand six hundred seventy-three.

6. Read the following numbers:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
1,834	9,703	8,046	3,000
4,039	5,000	3,604	4,500
607	750	707	2,908
6,300	2,030	98	5,660
8,270	572	2,345	789
509	1,111	670	1,050
1,062	7,008	2,010	9,590

7. Find the sum of each column.

8. Write in figures :

Six hundred ninety-nine.

Eight hundred five.

Three thousand seven hundred thirty-eight.

Nine thousand eight hundred four.

Two thousand seven hundred twenty-six.

Seven thousand.

9. Add the foregoing.

10. Write the following, and add :

Three thousand sixty-four.

Seven hundred nineteen.

Eighty-two.

Five hundred sixty.

Two thousand three hundred five.

Four hundred.

In a number of four figures the right-hand figure is called the *ones'* figure, the next is called the *tens'* figure, the next is called the *hundreds'* figure, and the left-hand figure is called the *thousands'* figure.

A comma is generally used to separate the thousands' figure from the hundreds' figure, except in numbers representing dates, such as Jan. 1, 1914.

Numbers of four figures are frequently read as hundreds : 1,800 being read as eighteen hundred ; 1,912, as nineteen hundred twelve.

Written Exercises

1. Find sums :

a. $1,406 + 789 + 3,008 + 57 + 259$

b. $954 + 2,309 + 756 + 64 + 1,891$

c. $2,345 + 123 + 67 + 321 + 5,432$

d. $87 + 430 + 29 + 7,856 + 379$

e. $473 + 389 + 4,500 + 98 + 1,267$

2. Find remainders :

a. $8,763 - 6,549$

d. $3,000 - 2,875$

b. $7,654 - 987$

e. $9,000 - 8,999$

c. $3,800 - 968$

f. $4,386 - 2,998$

3. Find products :

a. $1,044 \times 9$

e. $1,035 \times 8$

b. $2,304 \times 4$

f. $1,514 \times 5$

c. $1,613 \times 5$

g. $1,545 \times 6$

d. $1,325 \times 7$

h. $1,245 \times 8$

4. Find quotients :

a. $1,288 \div 2$

e. $8,062 \div 2$

b. $8,624 \div 2$

f. $1,446 \div 2$

c. $2,468 \div 2$

g. $1,055 \div 5$

d. $1,028 \div 2$

h. $3,060 \div 6$

Dollars and Cents

Twenty-three dollars five cents is written \$ 23.05.

A period, called a *decimal point*, is placed before the cents.

Read the following :

A	B	C	D.
\$ 4.76	\$ 1.25	\$ 43.55	\$ 805.07
\$ 9.83	\$ 3.75	\$ 27.09	\$ 914.30

Write :

1. Five dollars and seventy-nine cents.
2. Eight dollars and sixty-four cents.
3. Forty-two dollars and eight cents.
4. Sixty dollars and sixty cents.

Seventy-five cents is written \$.75.

Sometimes a cipher is written before the decimal point, seventy-five cents being written \$ 0.75; and two ciphers may be written after the decimal point when there are no cents, twenty-seven dollars being written \$ 27.00.

Read the following :

A	B	C	D	E
\$.84	\$ 0.16	\$.47	\$ 0.05	\$.15
\$.09	\$ 0.25	\$.63	\$ 0.13	\$.94

Write :

1. Four cents. Twenty cents. Twenty-six cents.
2. Ten cents. Fifty cents. Eighty-five cents.
3. Three cents. Sixty cents. Ninety-nine cents.
4. Seven cents. Eleven cents. Seventy-three cents.

Sight Exercises

Give answers :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	\$ 1.50 <u>+ .25</u>	\$ 0.38 <u>+ 0.40</u>	\$.60 <u>+ .35</u>	\$ 3.47 <u>+ 1.20</u>
<i>b.</i>	\$ 2.40 <u>+ 2.40</u>	\$ 0.30 <u>+ 0.30</u>	\$.50 <u>+ .80</u>	\$ 5.60 <u>+ 1.15</u>
<i>c.</i>	\$ 2.40 <u>× 2</u>	\$ 0.30 <u>× 3</u>	\$.20 <u>× 4</u>	\$ 1.10 <u>× 5</u>
<i>d.</i>	\$ 1.50 <u>− .25</u>	\$ 0.40 <u>+ .38</u>	\$.75 <u>− .45</u>	\$ 3.47 <u>− 1.20</u>
<i>e.</i>	\$ 1.00 <u>− .05</u>	\$ 2.00 <u>− .10</u>	\$.50 <u>− .25</u>	\$ 4.00 <u>− .30</u>
<i>f.</i>	\$ 2.40 <u>+ .60</u>	\$ 3.50 <u>− 3.25</u>	\$.60 <u>+ .50</u>	\$ 4.00 <u>+ 3.70</u>
<i>g.</i>	\$ 4.80 <u>2</u>	\$ 0.60 <u>3</u>	\$.80 <u>40</u>	\$ 4.40 <u>4</u>
<i>h.</i>	\$ 1.50 <u>× 2</u>	\$ 0.25 <u>× 4</u>	\$.50 <u>× 3</u>	\$ 1.12 <u>× 4</u>
<i>i.</i>	\$ 3.00 <u>2</u>	\$ 1.00 <u>5</u>	\$.66 <u>22</u>	\$ 1.60 <u>4</u>
<i>j.</i>	\$ 2.50 <u>+ .60</u>	\$ 2.50 <u>− .60</u>	\$.60 <u>+ .45</u>	\$ 1.60 <u>− .45</u>

Addition

Written Exercises

1. A grocer paid out the following amounts: \$2.84, \$0.47, \$0.09, \$16.56, \$3.25. How much did he pay?

PROCESS	
Arrange the numbers so that the decimal points will be in the same column, then add. Place a decimal point in the result under the other decimal points.	\$2.84
Prefix the dollar mark to the first addend and to the sum.	.47
	.09
	16.56
	3.25
	<u>Ans. \$23.21</u>

2. Find the sum of \$50.75, \$18.94, \$7.80, \$6.66, and \$10.95.

PROCESS	
Adding upward, the totals of the columns are:	
1st column, 11 (ignore 0), 15, 20 (write 0).	
2d column, (carrying 2), 11, 17, 25, 34, 41 (write 1).	
3d column, (carrying 4 and ignoring 0), 10, 17, \$50.75	
25 (ignoring 0) (write 5).	18.94
4th column, (carrying 2), 3, 4, 9 (write 9).	7.80
	6.66
	10.95
	<u>\$95.10</u>
TEST	
To test the result, cover it, and add downward.	
Adding downward, the totals are:	
1st column, 9, (ignoring 0), 15, 20 (write 0).	
2d column, (carrying 2), 9, 18, 26, 32, 41 (write 1).	
3d column, (carrying 4 and ignoring 0), 12, 19,	
25 (ignoring 0) (write 5).	
4th column, 7, 8, 9 (write 9).	

3. Add and test:

<i>a.</i>	\$49.62	<i>b.</i>	\$12.13	<i>c.</i>	\$36.81	<i>d.</i>	\$4.23
	6.38		8.75		.66		51.75
	4.79		24.30		3.75		9.67
	.24		3.98		.10		.82
	<u>.07</u>		<u>.70</u>		<u>20.99</u>		<u>9.56</u>

<i>e.</i>	\$40.09	<i>f.</i>	\$0.98	<i>g.</i>	\$6.18	<i>h.</i>	\$1.43
	27.59		62.44		7.29		77.48
	1.35		4.85		38.54		4.69
	6.47		9.00		.85		5.40
	<u>.36</u>		<u>.84</u>		<u>8.00</u>		<u>.41</u>

<i>i.</i>	\$9.10	<i>j.</i>	\$48.57	<i>k.</i>	\$8.88	<i>l.</i>	\$56.89
	7.45		4.84		17.77		9.99
	45.85		6.95		9.00		.48
	27.58		5.63		6.38		7.21
	<u>6.24</u>		<u>17.77</u>		<u>37.36</u>		<u>20.75</u>

$$m. \$21.27 + \$7.54 + \$5.68 + \$17.85 + \$0.97.$$

$$n. \$26.79 + \$2.15 + \$7.17 + \$0.98 + \$12.49.$$

4. Find the sum of three dollars nineteen cents, forty-three dollars eight cents, seven dollars, five dollars, five dollars seventy-three cents, and eight cents.

5. Add nine dollars ninety-nine cents, forty-eight dollars sixty-seven cents, eighty-eight cents, seventy-five cents, and nineteen dollars nine cents.

Subtraction

Written Exercises

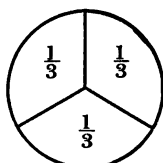
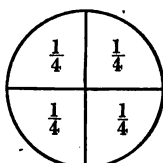
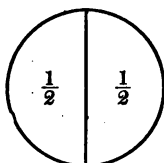
To test the result, cover the minuend and $\$40.33$
 then add the remainder to the subtrahend, -25.79
 adding upwards: $4 + 9$; (carrying 1) $6 + 7$;
 (carrying 1) $5 + 5$; (carrying 1) $2 + 2$. This $\$14.54$
 sum should be the same as the minuend covered.

1. Find remainders:

<i>A</i>	<i>B</i>
a. $\$18.01 - \9.43	$\$27.44 - \19.39
b. $\$48.63 - \8.77	$\$82.19 - \78.90
c. $\$90.50 - \9.86	$\$35.04 - \16.66
d. $\$35.52 - \5.83	$\$63.15 - \35.87
e. $\$53.60 - \8.75	$\$70.06 - \42.19

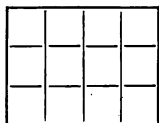
2. From ninety dollars take ninety cents.
3. Find the difference between sixty dollars sixteen cents and forty-three dollars three cents.
4. From the sum of $\$3.50$ and $\$2.40$ take the difference between $\$7.50$ and $\$6.20$.
5. From $\$10$ take the sum of $\$3.30$, $\$2.60$, and $\$1.50$.
6. How many times can 15 cents be subtracted from 75 cents?
7. How many times must 25 cents be increased by 15 cents to make a total of 70 cents?

Fractional Parts



To divide a thing into halves, it is divided into *two* equal parts; to divide a thing into quarters, it is divided into *four* equal parts; to divide a thing into thirds, it is divided into *three* equal parts.

1. Draw a rectangle, 4 inches long and 3 inches wide. How many square inches does it contain?



2. How many square inches are there in each horizontal row of squares? In each vertical row?
3. What part of the whole rectangle is each vertical row of squares? What part are two vertical rows? Three vertical rows?
4. What part of the whole rectangle is one horizontal row of squares? Two horizontal rows?

Three fourths is written $\frac{3}{4}$.

Two thirds is written $\frac{2}{3}$.

5. One third of 12 squares is 4 squares; how many squares are 2 thirds of 12 squares? One fourth of 12 squares is 3 squares; how many squares are 3 fourths of 12 squares?

Oral Exercises

1. Give answers :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	$\frac{1}{2}$ of 12	$\frac{1}{3}$ of 15	$\frac{2}{3}$ of 15	$\frac{1}{4}$ of 16
<i>b.</i>	$\frac{3}{4}$ of 16	$\frac{1}{5}$ of 15	$\frac{2}{5}$ of 15	$\frac{3}{5}$ of 15
<i>c.</i>	$\frac{4}{5}$ of 15	$\frac{1}{2}$ of 18	$\frac{1}{3}$ of 18	$\frac{2}{3}$ of 18
<i>d.</i>	$\frac{1}{8}$ of 16	$\frac{3}{8}$ of 16	$\frac{1}{5}$ of 20	$\frac{2}{5}$ of 20

2. How many inches (*a*) in $\frac{1}{2}$ foot? (*b*) $\frac{1}{4}$ foot?
 (*c*) $\frac{1}{3}$ foot? (*d*) $\frac{3}{4}$ foot? (*e*) $\frac{2}{3}$ foot?

3. How many ounces (*a*) in $\frac{1}{2}$ pound? (*b*) $\frac{1}{4}$ pound?
 (*c*) $\frac{3}{4}$ pound? (*d*) $\frac{5}{8}$ pound? (*e*) $\frac{7}{8}$ pound?

4. How many quarts (*a*) in $\frac{1}{2}$ peck? (*b*) $\frac{1}{4}$ peck?
 (*c*) $\frac{3}{4}$ peck?

5. What part of a foot is (*a*) 6 inches? (*b*) 4 inches?
 (*c*) 3 inches? (*d*) 9 inches? (*e*) 8 inches?

6. What part of a pound is (*a*) 8 ounces? (*b*) 4 ounces?
 (*c*) 12 ounces?

7. What part of a peck is (*a*) 2 quarts? (*b*) 4 quarts?
 (*c*) 6 quarts?

8. If a bushel of oats weighs 32 pounds, how many pounds does (*a*) a peck weigh? (*b*) A quart?

9. If a gallon of water weighs 8 pounds, what does (*a*) a pint weigh? (*b*) A quart?

10. How many pounds in $\frac{1}{2}$ bushel of potatoes if a bushel weighs 60 pounds?

11. If 2 pecks of wheat weigh 30 pounds, what is the weight of a bushel?

Dividing by 2

Written Exercises

1. Divide 618 by 2.

PROCESS

Begin at the hundreds' figure. Think 2 into 6 (goes) 3 times, and write 3 directly under the 6; think 2 into 1 (goes) 0 times, and write 0 directly under the 0; think 2 into 18 (goes) 9 times, and write 9 directly under the 8.

$$\begin{array}{r} 2 \overline{)618} \\ 309 \end{array} \text{ Ans.}$$

2. Divide :

$$a. \quad \begin{array}{r} A \\ 2 \overline{)274} \end{array}$$

$$b. \quad \begin{array}{r} B \\ 2 \overline{)698} \end{array}$$

$$c. \quad \begin{array}{r} C \\ 2 \overline{)492} \end{array}$$

$$d. \quad \begin{array}{r} D \\ 2 \overline{)874} \end{array}$$

$$b. \quad \begin{array}{r} 5 \overline{)510} \end{array}$$

$$6 \overline{)612}$$

$$7 \overline{)714}$$

$$8 \overline{)816}$$

3. Divide 186 by 2.

Since 1 does not contain 2, think 2 into 18 (goes) 9 times, write 9 under the 8, etc.

$$\begin{array}{r} 2 \overline{)186} \\ 93 \end{array} \text{ Ans.}$$

$$a. \quad \begin{array}{r} A \\ 2 \overline{)126} \end{array}$$

$$b. \quad \begin{array}{r} B \\ 2 \overline{)148} \end{array}$$

$$c. \quad \begin{array}{r} C \\ 2 \overline{)160} \end{array}$$

$$d. \quad \begin{array}{r} D \\ 2 \overline{)184} \end{array}$$

$$b. \quad \begin{array}{r} 5 \overline{)105} \end{array}$$

$$6 \overline{)126}$$

$$7 \overline{)147}$$

$$8 \overline{)168}$$

4. Divide 778 by 2.

Say 2 into 7 (goes) 3 times and 1 over; 2 into 17 (goes) 8 times and 1 over; 2 into 18 (goes) 9 times.

$$\begin{array}{r} 2 \overline{)778} \\ \text{Ans. } 389 \end{array}$$

5. Find quotients:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a.	$2\overline{)376}$	$2\overline{)532}$	$2\overline{)792}$	$2\overline{)942}$
b.	$2\overline{)110}$	$2\overline{)276}$	$2\overline{)830}$	$2\overline{)706}$
c.	$2\overline{)310}$	$2\overline{)216}$	$2\overline{)912}$	$2\overline{)138}$

6. Divide:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a.	$3\overline{)363}$	$5\overline{)510}$	$7\overline{)784}$	$3\overline{)606}$
b.	$5\overline{)610}$	$7\overline{)854}$	$3\overline{)366}$	$5\overline{)605}$
c.	$8\overline{)896}$	$4\overline{)884}$	$6\overline{)612}$	$8\overline{)816}$
d.	$4\overline{)880}$	$6\overline{)732}$	$9\overline{)108}$	$9\overline{)918}$

7. What is $\frac{1}{2}$ of 52?

$\frac{1}{2}$ of 52 = 26 *Ans.* Divide 52 by 2.

8. Give answers:

- a. $\frac{1}{2}$ of 72. c. $\frac{1}{2}$ of 30. e. $\frac{1}{2}$ of 56.
 b. $\frac{1}{2}$ of 36. d. $\frac{1}{2}$ of 54. f. $\frac{1}{2}$ of 70.

g. What is $\frac{1}{4}$ of 88?

$\frac{1}{4}$ of 88 = 22 *Ans.* Divide 88 by 4.

- a. $\frac{1}{4}$ of 840. d. $\frac{1}{4}$ of 488. g. $\frac{1}{4}$ of 804.
 b. $\frac{1}{4}$ of 480. e. $\frac{1}{4}$ of 840. h. $\frac{1}{4}$ of 484.
 c. $\frac{1}{4}$ of 800. f. $\frac{1}{4}$ of 408. i. $\frac{1}{4}$ of 844.

Oral Problems

1. If 8 yards of material are required for a dress, how many dresses can be made out of 16 yards?

2. *a.* How much 40-cent candy can be bought for 20 cents? *b.* What is the cost of $\frac{3}{4}$ pound?

3. How many 2-bushel bags will be required to hold 40 bushels of wheat?

4. A boy is saving his money to buy a 50-cent ball. How much will he need after he has saved 43 cents?

5. How many half-pound boxes will be required to hold 12 pounds of candy?

6. How much does a man receive for 8 hours' work at $\$ \frac{1}{4}$ per hour?

7. How many oranges are there in 3 quarters of a dozen?

8. A boy had $\$ \frac{3}{4}$. How much had he after spending $\$ \frac{1}{2}$?

9. If a man requires 18 hours to do a piece of work, how long would it take 2 men to do it?

10. Twenty-seven tons of hay were cut from one field and ten from another. How many tons were cut from the two fields?

11. There are 90 pages in Tom's reader. He has read 81 pages. How many pages has he still to read?

12. How many half dollars in 12 dollars?

13. What part of an hour is 30 minutes?

Written Problems

1. If 8 yards of material will make a dress, how many dresses will 96 yards make?
2. Find the cost of $\frac{1}{8}$ yard of silk at 96 cents per yard.
3. How many 2-bushel bags will be needed to hold 72 bushels of wheat?
4. When a boy has saved 23 cents, how much does he still need for a 50-cent ball?
5. How many $\frac{1}{2}$ -pint plates of ice cream will 48 pints make?
6. How much is received for 56 hours' work at \$ $\frac{1}{2}$ per hour?
7. *a.* How many oranges are there in 6 dozen?
b. How many in $6\frac{3}{4}$ dozen?
8. A boy had \$ $9\frac{3}{4}$. How much would he have after spending \$ $9\frac{1}{2}$ for clothes?
9. If a man requires 96 hours to do a piece of work, how long would it take 8 men to do it?
10. Twenty-seven tons of hay were cut from one field and 18 tons from another. How many tons were cut from the two fields?
11. When a person has read 75 pages, how many more must he read to finish a book containing 90 pages?
12. How many half dollars in 12 dollars and a half?
13. What part of a dollar is 75 cents?

Dividing by 3

Blackboard Exercises

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	$3 \overline{)270}$	$3 \overline{)180}$	$3 \overline{)690}$	$3 \overline{)219}$
<i>b.</i>	$3 \overline{)120}$	$3 \overline{)150}$	$3 \overline{)156}$	$3 \overline{)390}$
<i>c.</i>	$3 \overline{)240}$	$3 \overline{)210}$	$3 \overline{)123}$	$3 \overline{)696}$

Written Exercises

Divide:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	$3 \overline{)372}$	$3 \overline{)117}$	$3 \overline{)945}$	$3 \overline{)402}$
<i>b.</i>	$3 \overline{)459}$	$3 \overline{)288}$	$3 \overline{)876}$	$3 \overline{)504}$
<i>c.</i>	$3 \overline{)675}$	$3 \overline{)135}$	$3 \overline{)798}$	$3 \overline{)705}$
<i>d.</i>	$3 \overline{)750}$	$3 \overline{)258}$	$3 \overline{)621}$	$3 \overline{)801}$
<i>e.</i>	$3 \overline{)543}$	$3 \overline{)177}$	$3 \overline{)510}$	$3 \overline{)948}$

Multiplication and Division

Find answers:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	233×4	103×9	123×4	132×6
<i>b.</i>	$4 \overline{)928}$	$9 \overline{)927}$	$4 \overline{)532}$	$6 \overline{)798}$
<i>c.</i>	123×5	113×8	132×5	131×6
<i>d.</i>	$5 \overline{)665}$	$8 \overline{)984}$	$5 \overline{)515}$	$7 \overline{)791}$
<i>e.</i>	123×7	123×6	103×8	113×5

Oral Problems

1. At 3 feet to a yard, how many feet are there in 12 yards?

2. At 12 inches to the foot, how many inches are there in 4 feet?

3. When flour is 4 cents a pound, how many pounds can be bought for 36 cents?

4. A man earns \$22 a week; how much does he earn in 3 weeks?

5. A grocer had 90 eggs. How many would he have after selling a half dozen?

6. There are 36 pupils in a class. One third of them had the wrong answer. How many were wrong?

7. A newsboy sold papers for 24 cents, one third of which was profit. How much was his profit?

8. If 8 nails are required for a horseshoe, how many shoes will need 32 nails?

9. A watch costs \$25 and a chain \$5; what is the cost of both?

10. How many hours are there in $\frac{3}{4}$ day?

11. How many minutes are there from ten minutes past 2 until 3 o'clock?

12. How many minutes are there in one third of an hour?

Written Problems

1. At 3 feet to a yard, how many feet are there in 18 yards?

2. At 12 inches to the foot, how many inches are there in 7 feet?

3. When flour is 4 cents a pound, how many pounds can be bought for 92 cents?

4. A man earns \$17 per week; how much does he earn in 3 weeks?

5. A grocer had 90 eggs. How many would he have after selling a dozen?

6. There are 42 pupils in a class. One third of them had the wrong answer. How many were wrong?

7. A newsboy sold papers for 75 cents. If one third of this was profit, what was his profit?

8. If 8 nails are required for a horseshoe, how many shoes will need 96 nails?

9. How much would be the cost of an overcoat at \$25 and a suit at \$15?

10. How many minutes are there in $\frac{3}{4}$ hour?

11. How many minutes are there from 25 minutes past 2 until 3 o'clock?

12. How many hours are there in a day and three quarters?

Dividing by 4

Divide.

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	$4 \overline{)456}$	$4 \overline{)496}$	$4 \overline{)536}$	$4 \overline{)476}$
<i>b.</i>	$4 \overline{)936}$	$4 \overline{)976}$	$4 \overline{)500}$	$4 \overline{)540}$
<i>c.</i>	$4 \overline{)580}$	$4 \overline{)620}$	$4 \overline{)980}$	$4 \overline{)544}$
<i>d.</i>	$4 \overline{)584}$	$4 \overline{)624}$	$4 \overline{)664}$	$4 \overline{)984}$
<i>e.</i>	$4 \overline{)668}$	$4 \overline{)708}$	$4 \overline{)628}$	$4 \overline{)700}$
<i>f.</i>	$4 \overline{)712}$	$4 \overline{)672}$	$4 \overline{)632}$	$4 \overline{)752}$
<i>g.</i>	$4 \overline{)760}$	$4 \overline{)796}$	$4 \overline{)788}$	$4 \overline{)780}$

Multiplication and Division

Find answers:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	144×5	144×6	134×7	124×8
<i>b.</i>	$5 \overline{)720}$	$6 \overline{)804}$	$7 \overline{)868}$	$8 \overline{)912}$
<i>c.</i>	104×9	123×8	124×7	134×5
<i>d.</i>	$9 \overline{)936}$	$8 \overline{)992}$	$7 \overline{)798}$	$5 \overline{)670}$
<i>e.</i>	114×6	114×7	114×8	103×9
<i>f.</i>	$6 \overline{)204}$	$7 \overline{)308}$	$8 \overline{)272}$	$9 \overline{)396}$

Oral Problems

1. When $\frac{1}{4}$ pound of candy costs 10 cents, what is the cost of a pound?

2. When there are 9 desks in each row, how many desks are there in 4 rows?

3. A woman had 50 chickens; how many had she after selling 47?

4. Find the cost of $\frac{1}{4}$ yard of linen at 36 cents per yard.

5. At 4 for a dollar, how many dollars would 24 baseballs cost?

6. At 8 yards for a dollar, how many yards can be bought for \$4?

7. A boy earned 75 cents. He spent all but 7 cents. How much did he spend?

8. If a man saves \$8 each month, how much does he save in a year?

9. A farmer bought a cow for \$36 and sold it for \$9 more. How much did he get for it?

10. A girl divides a number by 7 and her answer is 8. What is the number?

11. A farmer had 67 sheep. How many would he have if he bought 8 more?

12. If 4 boys take 12 days to do a piece of work, how long would it take 1 boy to do it?

Written Problems

1. When $\frac{1}{4}$ pound of tea costs 15 cents, what is the cost of a pound?
2. When there are 13 desks in each row, how many desks are there in 6 rows?
3. A woman had 50 chickens; how many had she after selling 28?
4. Find the cost of $\frac{1}{4}$ yard of silk at 76 cents per yard.
5. At 4 for a dollar, how many dollars would 56 baseballs cost?
6. At 4 yards for a dollar, how many yards could be bought for \$16?
7. A boy earned 75 cents. He spent all but 27 cents. How much did he spend?
8. If a man saves \$13 each month, how much does he save in 6 months?
9. A man bought a cow for \$56 and sold it for \$19 more. How much did he get for it?
10. A girl divides a number by 4 and her answer is 24. What is the number?
11. A farmer has 72 sheep. How many would he have if he bought 18 more?
12. If four men take 24 days to do a piece of work, how long would it take 1 man to do it?

Dividing by 5

Divide:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a. $5 \overline{)625}$	$5 \overline{)675}$	$5 \overline{)725}$	$5 \overline{)775}$
b. $5 \overline{)680}$	$5 \overline{)730}$	$5 \overline{)780}$	$5 \overline{)830}$
c. $5 \overline{)735}$	$5 \overline{)785}$	$5 \overline{)835}$	$5 \overline{)885}$
d. $5 \overline{)790}$	$5 \overline{)840}$	$5 \overline{)890}$	$5 \overline{)940}$
e. $5 \overline{)845}$	$5 \overline{)895}$	$5 \overline{)945}$	$5 \overline{)995}$
f. $6 \overline{)930}$	$7 \overline{)875}$	$8 \overline{)920}$	$9 \overline{)945}$
g. $6 \overline{)330}$	$7 \overline{)315}$	$8 \overline{)280}$	$9 \overline{)225}$

Examples in division are written in several ways :

<i>Divisor</i> 3	$\overline{)30}$	<i>Dividend.</i>	<i>Dividend</i> 30	\div	3	=	10	<i>Quotient.</i>
<i>Ans.</i>	10	<i>Quotient.</i>	<i>Divisor</i>					
<i>Dividend</i>			<i>Divisor</i>				<i>Quotient</i>	
30			3	+		=	10	

Sight Exercises

Give answers :

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a. $36 + 8$	$21 + 7$	$50 - 46$	$\frac{1}{4}$ of 32
b. $32 + 8$	$32 - 4$	5×9	$18 + 7$
c. 4×4	$\frac{1}{3}$ of 12	$27 \div 3$	$25 - 18$
d. $32 - 28$	$44 + 6$	$\frac{1}{2}$ of 12	$24 + 8$
e. $\frac{1}{2}$ of 16	9×5	$35 + 7$	$55 - 9$

Special Drills

1. Give sums :

$50 + 30$	$20 + 60$	$50 + 40$	$40 + 50$	$30 + 60$
$70 + 20$	$30 + 30$	$30 + 20$	$60 + 20$	$40 + 20$
$20 + 40$	$20 + 70$	$20 + 50$	$40 + 40$	$50 + 20$
$40 + 30$	$60 + 30$	$30 + 40$	$30 + 50$	$20 + 30$

2. Give remainders :

$90 - 50$	$50 - 20$	$80 - 40$	$50 - 30$	$90 - 70$
$80 - 30$	$80 - 60$	$70 - 30$	$90 - 40$	$80 - 50$
$40 - 20$	$70 - 20$	$60 - 40$	$60 - 20$	$70 - 40$
$60 - 30$	$90 - 30$	$90 - 60$	$70 - 50$	$90 - 20$

3. Give products :

20×2	3×30	20×4	$\frac{1}{3} \times 90$	20×3
2×30	20×3	$\frac{1}{2} \times 60$	$80 \times \frac{1}{2}$	$\frac{1}{2} \times 40$
30×3	2×40	$80 \times \frac{1}{4}$	3×20	2×20
4×20	30×2	$40 \times \frac{1}{2}$	$\frac{1}{2} \times 80$	$90 \times \frac{1}{3}$

4. Give results :

$40 \div 2$	$90 \div 30$	$80 \div 4$	$\frac{1}{2}$ of 60	$40 \div 20$
$60 \div 30$	$60 \div 3$	$\frac{1}{3}$ of 60	$60 \div 20$	$\frac{1}{3}$ of 90
$90 \div 3$	$80 \div 40$	$80 \div 2$	$\frac{1}{2}$ of 40	$\frac{3}{4}$ of 40
$80 \div 20$	$60 \div 2$	$\frac{1}{4}$ of 80	$\frac{2}{3}$ of 30	$\frac{1}{2}$ of 80

5. Give results :

$\frac{1}{2} + \frac{1}{2}$	$1 - \frac{1}{2}$	$4 \times \frac{1}{2}$	$1 \div \frac{1}{2}$	$1 \div \frac{1}{4}$
$1\frac{1}{2} + \frac{1}{2}$	$2 - \frac{1}{2}$	$\frac{1}{2} \times 10$	$2 \div \frac{1}{2}$	$\frac{1}{2} \div \frac{1}{4}$
$2\frac{1}{2} + \frac{1}{2}$	$5 - \frac{1}{2}$	$20 \times \frac{1}{2}$	$5 \div \frac{1}{2}$	$2 \div \frac{1}{4}$
$5\frac{1}{2} + \frac{1}{2}$	$10 - \frac{1}{2}$	$\frac{1}{2} \times 40$	$10 \div \frac{1}{2}$	$3 \div \frac{1}{3}$

Oral Problems

1. What will be the cost of 3 pounds of coffee at 30¢ per pound?

2. There are 100 cents in a dollar. How many cents in $\frac{1}{5}$ dollar?

3. What shall I pay for 4 readers at 20 cents each?

4. A boy pays 50 cents for a pair of skates and 20 cents for a pound of candy. How much money does he spend?

5. What will be the price of $\frac{1}{4}$ pound of 80-cent tea?

6. Find the cost of $\frac{1}{2}$ yard of silk at 60¢ per yard.

7. A storekeeper sells 80 marbles for 20 cents. How many does he sell for 1 cent?

8. There are seats for 40 pupils in 1 classroom. For how many pupils are there seats in 2 rooms?

9. A man bought 3 pounds of 20-cent coffee. How much did he pay for it?

10. How many ounces in 10 pounds?

11. How many quarts in 80 gallons?

12. The pupils of a certain class solve 20 problems each day. How many do they solve in 5 days?

13. A farmer had 90 sheep. How many did he have after selling 50 sheep?

14. A family uses 3 quarts of milk a day. How many quarts are used in a month of 30 days?

Dollars and Cents

Written Exercises

1. Add. Test results:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	\$36.85	\$ 7.44	\$25.82	\$31.25	\$ 8.47
	6.95	8.82	5.33	9.45	20.00
	18.26	18.25	20.31	10.24	5.78
	5.37	4.76	2.59	7.13	.29
	<u>7.44</u>	<u>37.53</u>	<u>.45</u>	<u>8.88</u>	<u>48.86</u>
<i>b.</i>	\$11.47	\$35.79	\$18.27	\$ 5.10	\$48.74
	10.83	3.46	3.42	43.83	.09
	45.09	11.89	20.35	7.65	6.85
	7.67	6.34	2.87	17.25	.77
	8.54	9.95	28.92	5.74	13.24
	<u>.98</u>	<u>8.87</u>	<u>4.73</u>	<u>18.29</u>	<u>7.65</u>
<i>c.</i>	\$29.99	\$12.25	\$25.26	\$10.79	\$ 3.89
	14.89	8.24	8.43	3.04	22.50
	2.46	5.83	.24	13.40	6.18
	.25	16.79	53.10	7.44	20.06
	25.57	9.86	1.75	8.26	.88
	<u>3.21</u>	<u>43.50</u>	<u>.89</u>	<u>.29</u>	<u>9.47</u>
<i>d.</i>	\$36.46	\$ 9.32	\$13.08	\$12.46	\$17.27
	5.16	8.56	3.15	13.81	6.66
	8.17	42.97	11.48	11.36	.75
	9.10	2.73	5.27	1.88	24.00
	29.13	9.37	5.21	.75	4.44
	<u>6.48</u>	<u>10.66</u>	<u>40.69</u>	<u>29.95</u>	<u>.98</u>

2. Subtract. Test:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	\$90.00 <u>- 8.47</u>	\$87.50 <u>- 29.43</u>	\$75.98 <u>- 47.99</u>	\$56.03 <u>- 27.06</u>	\$47.96 <u>- 8.89</u>
<i>b.</i>	\$81.62 <u>- 51.77</u>	\$53.70 <u>- 9.84</u>	\$45.76 <u>- 17.89</u>	\$47.57 <u>- 30.75</u>	\$30.13 <u>- 25.08</u>
<i>c.</i>	\$36.80 <u>- 19.95</u>	\$52.23 <u>- 27.26</u>	\$93.28 <u>- 47.65</u>	\$85.64 <u>- 43.76</u>	\$92.73 <u>- 50.95</u>

3. Multiply. Test:

Point off two places in the answer for cents.

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	\$14.09 <u>× 7</u>	\$12.48 <u>× 8</u>	\$11.59 <u>× 7</u>	\$10.83 <u>× 9</u>	\$9.84 <u>× 10</u>
<i>b.</i>	\$7.65 <u>× 10</u>	\$6.45 <u>× 11</u>	\$8.90 <u>× 21</u>	\$4.32 <u>× 31</u>	\$3.25 <u>× 41</u>

4. Divide. Test:

Place the decimal point in the quotient when it is reached in the dividend.

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	4) <u>\$98.76</u>	5) <u>\$95.75</u>	6) <u>\$96.84</u>	7) <u>\$90.09</u>
<i>b.</i>	8) <u>\$75.12</u>	9) <u>\$96.75</u>	11) <u>\$80.08</u>	12) <u>\$15.12</u>
<i>c.</i>	21) <u>\$60.06</u>	21) <u>\$90.09</u>	21) <u>\$48.93</u>	21) <u>\$68.88</u>

Oral Problems.

1. How many nickels are there in a half dollar ?

SOLUTION

The number of nickels in 50 cents is the number of times 5 cents is contained in 50 cents, which is 10. *Ans.* 10 nickels.

2. How many quarts in 5 gallons ?

SOLUTION

Since there are 4 quarts in 1 gallon, in 5 gallons there are 5 times 4 quarts, or 20 quarts. *Ans.* 20 quarts.

3. Change 4 feet to inches.
4. Change 32 pecks to bushels.
5. At 5 cents per pound, how many pounds of sugar can be bought for 45 cents ?
6. If a train goes 40 miles in one hour, and 30 miles the next hour, how many miles does it go in two hours ?
7. A girl is taking a 90-mile trip in an automobile. How many miles has she yet to go after having traveled 60 miles ?
8. How many pounds of 5-cent sugar can be bought for a quarter dollar ? A half dollar ?

Written Problems

1. How many nickels are there in 85 cents?

SOLUTION

To find the number of 5-cent pieces in 85 cents, divide 85 cents by 5 cents, which gives 17. The answer is 17 nickels.

5 cents)85 cents
Ans. 17 (nickels)

2. How many quarts in 23 gallons?

SOLUTION

Since 1 gallon is equal to 4 quarts, 23 gallons are 23 times 4 quarts, or 92 quarts.

NOTE. Although 23 is written as the multiplier, the product is obtained by multiplying the larger number, 23, by the smaller number, 4.

4 qt.
 $\times 23$
Ans. 92 qt.

3. Change 7 feet to inches.
4. Change 96 pecks to bushels.
5. At 5 cents per pound, how many pounds can I buy for 95 cents?
6. If a boat sails 47 miles in the morning, and 45 miles in the afternoon, how far has it sailed?
7. A boy is taking a 90-mile trip. How many miles has he to go after he has gone 47 miles?
8. How many pounds of 5-cent sugar can be bought for a dollar and a quarter?

Sight Drills

1. Add:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
<i>a.</i>	50 <u>+ 30</u>	40 <u>+ 50</u>	20 <u>+ 70</u>	40 <u>+ 20</u>	32 <u>+ 30</u>	20 <u>+ 42</u>	14 <u>+ 80</u>
<i>b.</i>	60 <u>+ 24</u>	61 <u>+ 24</u>	43 <u>+ 22</u>	54 <u>+ 25</u>	63 <u>+ 36</u>	47 <u>+ 20</u>	58 <u>+ 31</u>

2. Subtract:

<i>a.</i>	80 <u>- 50</u>	80 <u>- 30</u>	62 <u>- 40</u>	62 <u>- 22</u>	90 <u>- 70</u>	94 <u>- 60</u>	96 <u>- 36</u>
<i>b.</i>	84 <u>- 53</u>	95 <u>- 72</u>	84 <u>- 31</u>	95 <u>- 23</u>	76 <u>- 30</u>	67 <u>- 44</u>	59 <u>- 29</u>

3. Multiply:

<i>a.</i>	40 <u>× 2</u>	30 <u>× 3</u>	20 <u>× 4</u>	41 <u>× 2</u>	32 <u>× 3</u>	21 <u>× 4</u>	11 <u>× 9</u>
<i>b.</i>	12 <u>× 4</u>	13 <u>× 3</u>	14 <u>× 2</u>	22 <u>× 4</u>	23 <u>× 3</u>	24 <u>× 2</u>	33 <u>× 3</u>
<i>c.</i>	20 <u>× 9</u>	30 <u>× 8</u>	40 <u>× 7</u>	50 <u>× 6</u>	60 <u>× 5</u>	70 <u>× 4</u>	80 <u>× 3</u>

4. Divide:

<i>a.</i>	$\frac{80}{2}$	$\frac{80}{40}$	$\frac{60}{20}$	$\frac{60}{30}$	$\frac{60}{2}$	$\frac{60}{3}$	$\frac{60}{10}$
<i>b.</i>	$\frac{90}{30}$	$\frac{90}{3}$	$\frac{84}{42}$	$\frac{84}{21}$	$\frac{84}{4}$	$\frac{96}{3}$	$\frac{88}{4}$

Oral Problems

1. A farmer has 60 tons of hay. How many tons will he have after selling 40 tons?

2. I paid 80 cents for 4 pounds of coffee. What was the price per pound?

3. How many cars are there in two freight trains, one having 40 cars and the other having 30 cars?

4. What is the cost of 3 yards of ribbon at 30 cents per yard?

5. After giving away one half of his firecrackers, Tom has 40 left. How many did he have at first?

6. When tea is 60 cents a pound, what part of a pound can I buy for 30 cents?

7. What part of a girl's dollar is left after she spends 25 cents?

8. How many trees are there in 4 rows each containing 20 trees?

9. How many pints are there in 40 quarts? How many gallons?

10. How many feet in 48 inches?

11. A boy gave his sister 12 cents, which was one half of his money. How many cents had he left?

12. A man is 37 years old. In how many years will he be 40?

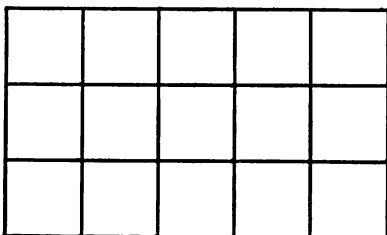
13. How many days are there in November and December?

14. How many days are there in 6 weeks?

Fractional Parts

Oral Exercises

1. Draw a rectangle 5 inches long and 3 inches wide, and divide it into 1-inch squares.



2. (a) How many squares are there in each horizontal row? (b) How many horizontal rows are there? (c) How many square inches in the rectangle?

3. (a) How many squares are there in each vertical column? (b) How many vertical columns are there? (c) How many square inches are 5 times 3 square inches? (d) How many square inches are 3 times 5 square inches?

4. (a) What part of the rectangle is one horizontal row? (b) Two horizontal rows?

5. (a) What part of the rectangle is one vertical column? (b) Two vertical columns? (c) Three vertical columns? (d) Four vertical columns?

6. (a) 3 is what part of 15? (b) 5 is what part? (c) 6 is what part? (d) 9 is what part? (e) 10 is what part? (f) 12 is what part?

7. a. $\frac{1}{3}$ of 36, 60, 66, 90. e. $\frac{1}{5}$ of 15, 25, 35, 45.

b. $\frac{1}{4}$ of 24, 36, 80, 48. f. $\frac{2}{5}$ of 5, 15, 25, 35.

c. $\frac{2}{3}$ of 12, 18, 24, 30. g. $\frac{3}{5}$ of 20, 30, 40, 50.

d. $\frac{3}{4}$ of 16, 20, 32, 40. h. $\frac{4}{5}$ of 15, 20, 35, 40.

Multiplication Table

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	
3	6	9	12	15	18	21		
4	8	12	16	20	24			
5	10	15	20	25				
6	12	18	24					
7	14	21						
8	16							
9								

Copy the foregoing table, and fill the vacant spaces.

Write 2 times 9 in the second row and 9 times 2 in the second column, 3 times 8 and 3 times 9 in the third row, 8 times 3 and 9 times 3 in the third column, etc.

Oral Exercises

1. Count by 6's to 60.
2. Count by 7's to 70.
3. Count by 8's to 80.
4. Count by 9's to 90.
5. How many are (a) six 6's? (b) Seven 6's?
(c) Eight 6's? (d) Nine 6's?
6. How many are (a) Seven 7's? (b) Eight 7's?
(c) Nine 7's?
7. How many are (a) eight 8's? (b) Nine 8's?
8. How many are nine 9's?

Multiplying by 6

Drill Exercises

Give products:

6×6	7×6	8×6	9×6
6×7	7×5	8×5	9×5
6×8	7×4	8×4	9×4
6×9	7×3	8×3	9×3

Written Exercises

1. Multiply:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	666 <u>$\times 6$</u>	777 <u>$\times 6$</u>	888 <u>$\times 6$</u>	999 <u>$\times 6$</u>	666 <u>$\times 7$</u>
<i>b.</i>	666 <u>$\times 8$</u>	666 <u>$\times 9$</u>	678 <u>$\times 6$</u>	456 <u>$\times 6$</u>	567 <u>$\times 6$</u>
<i>c.</i>	345 <u>$\times 6$</u>	789 <u>$\times 6$</u>	456 <u>$\times 8$</u>	345 <u>$\times 8$</u>	234 <u>$\times 9$</u>
<i>d.</i>	345 <u>$\times 7$</u>	264 <u>$\times 6$</u>	360 <u>$\times 6$</u>	299 <u>$\times 6$</u>	647 <u>$\times 6$</u>

2. Multiply by 6:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	344	1,448	1,454	1,583	1,628
<i>b.</i>	676	1,056	1,536	1,295	1,468
<i>c.</i>	458	1,374	1,665	1,378	1,357
<i>d.</i>	597	1,570	1,498	1,467	1,555

Dividing by 6

Drill Exercises

Give quotients:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>a.</i>	$6 \overline{)36}$	$6 \overline{)42}$	$8 \overline{)32}$	$7 \overline{)42}$	$6 \overline{)30}$
<i>b.</i>	$8 \overline{)40}$	$7 \overline{)35}$	$9 \overline{)54}$	$8 \overline{)48}$	$7 \overline{)21}$
<i>c.</i>	$9 \overline{)36}$	$6 \overline{)48}$	$8 \overline{)24}$	$7 \overline{)14}$	$8 \overline{)16}$
<i>d.</i>	$6 \overline{)54}$	$7 \overline{)28}$	$9 \overline{)18}$	$9 \overline{)27}$	$9 \overline{)45}$
<i>e.</i>	$5 \overline{)45}$	$6 \overline{)24}$	$5 \overline{)30}$	$4 \overline{)24}$	$5 \overline{)20}$
<i>f.</i>	$4 \overline{)32}$	$5 \overline{)35}$	$6 \overline{)12}$	$3 \overline{)24}$	$4 \overline{)32}$

Written Exercises

1. If one tent shelters 6 soldiers, how many tents will be required to shelter 5,436 soldiers?

When the first quotient figure is written in its proper place, each remaining figure in the $6 \overline{)5436}$ tents dividend must have a figure in the quotient. *Ans.* 906 tents

DIVISION TEST

	$6 \overline{)6,120}$		$6 \overline{)4,806}$		$6 \overline{)6,024}$	
<i>Quotient</i>	1,020	<i>Ans.</i>	801	<i>Ans.</i>	1,004	<i>Ans.</i>
<i>Divisor</i>	$\times 6$		$\times 6$		$\times 6$	
<i>Dividend</i>	$\overline{6,120}$		$\overline{4,806}$		$\overline{6,024}$	

To test the result, cover the dividend with a piece of paper and write on the latter the product of the quotient by the divisor without rewriting the latter.

Written Exercises

Divide. Test answers:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a. $6 \overline{)1,056}$	$6 \overline{)1,572}$	$6 \overline{)2,286}$	$6 \overline{)2,160}$
b. $6 \overline{)2,670}$	$6 \overline{)3,966}$	$6 \overline{)3,588}$	$6 \overline{)2,370}$
c. $6 \overline{)4,068}$	$6 \overline{)4,416}$	$6 \overline{)5,244}$	$6 \overline{)5,658}$
d. $6 \overline{)6,816}$	$6 \overline{)6,432}$	$6 \overline{)6,468}$	$6 \overline{)7,344}$
e. $6 \overline{)7,740}$	$6 \overline{)8,670}$	$6 \overline{)8,832}$	$6 \overline{)8,634}$
f. $6 \overline{)9,360}$	$6 \overline{)9,546}$	$6 \overline{)8,910}$	$6 \overline{)5,040}$
g. $6 \overline{)2,358}$	$6 \overline{)3,456}$	$6 \overline{)4,560}$	$6 \overline{)6,780}$
h. $6 \overline{)7,890}$	$6 \overline{)8,910}$	$6 \overline{)9,870}$	$6 \overline{)8,766}$
i. $6 \overline{)3,996}$	$7 \overline{)1,638}$	$8 \overline{)2,600}$	$9 \overline{)2,376}$
j. $6 \overline{)4,662}$	$7 \overline{)2,345}$	$8 \overline{)1,800}$	$9 \overline{)4,995}$
k. $6 \overline{)5,328}$	$7 \overline{)2,268}$	$8 \overline{)1,888}$	$9 \overline{)3,996}$

Oral Problems

1. How many hours are there in a day and a half?
2. A farmer had 80 acres of land. He sold 30 acres. How many acres were left?
3. If one man takes 60 days to do a piece of work, how long would it take 3 men to do it?
4. What is the cost of 40 newspapers at $\frac{1}{2}$ cent each?
5. There are 36 pupils in one room and 20 in another. How many are there in both rooms?
6. How many cars in 3 trains, each containing 20 cars?
7. How many weeks are there in 35 days?
8. A girl is 8 years old and her mother is 32 years old. What is the difference in their ages?
9. How many books are on two shelves one containing 16 books and the other containing 12 books?
10. How many ounces in a pound and a quarter?
11. How many minutes in 3 hours?
12. How many horses can be shod with 24 shoes?
13. Three feet make 1 yard. If a rail is 10 yards long, how many feet long is it?
14. Two boys together weigh 150 pounds. If one weighs 80 pounds, what is the weight of the other?
15. How many months are there in three years?
16. How many inches in 2 feet?

Written Problems

1. How many hours are there in 4 days?
2. A farmer has 80 acres of land. How much land would he have if he sold 36 acres?
3. If one man takes 65 days to do a piece of work, how long would it take 5 men to do it?
4. Find the cost of 96 newspapers at $\frac{1}{2}$ cent each.
5. Mr. Jones has 36 pupils in his class and Mr. Brown has 38 pupils. How many in both classes?
6. How many cars in 4 trains each containing 24 cars?
7. How many weeks are there in 98 days?
8. A boy is 18 years old and his father is 46 years old. What is the difference in their ages?
9. There are 26 books on one shelf and 24 on another. How many books are there on both shelves?
10. How many ounces are there in 5 pounds?
11. How many minutes are there in 9 hours?
12. How many horses can be shod with 96 shoes?
13. If a fence is 16 yards long, how many feet long is it?
14. Two boys weigh together 150 pounds. If one weighs 83 pounds, what is the weight of the other?
15. How many months are there in 8 years?
16. How many inches in 5 feet?

Multiplying by 7**Drill Exercises**

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	7×7	8×5	9×5	8×4
<i>b.</i>	7×8	8×6	9×6	7×5
<i>c.</i>	7×9	8×7	9×7	7×6

Written Exercises**1. Multiply :**

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	$\begin{array}{r} 777 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 888 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 999 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 777 \\ \times 8 \\ \hline \end{array}$
<i>b.</i>	$\begin{array}{r} 777 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 567 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 765 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 678 \\ \times 7 \\ \hline \end{array}$
<i>c.</i>	$\begin{array}{r} 876 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 789 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 987 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 897 \\ \times 7 \\ \hline \end{array}$
<i>d.</i>	$\begin{array}{r} 878 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 567 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 765 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 657 \\ \times 8 \\ \hline \end{array}$
<i>e.</i>	$\begin{array}{r} 657 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 576 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 576 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 756 \\ \times 8 \\ \hline \end{array}$

2. Multiply by 7 :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	434	1,234	1,265	1,394
<i>b.</i>	766	1,067	1,347	1,406
<i>c.</i>	854	1,285	1,409	1,389

SECTION TWO

Dividing by 7

Written Exercises

1. Divide and test:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	$7 \overline{)1,057}$	$7 \overline{)1,554}$	$7 \overline{)2,261}$	$7 \overline{)2,394}$
<i>b.</i>	$7 \overline{)2,660}$	$7 \overline{)2,156}$	$7 \overline{)3,493}$	$7 \overline{)2,835}$
<i>c.</i>	$7 \overline{)4,361}$	$7 \overline{)8,099}$	$7 \overline{)5,075}$	$7 \overline{)3,059}$
<i>d.</i>	$7 \overline{)6,048}$	$7 \overline{)4,263}$	$7 \overline{)2,569}$	$7 \overline{)9,982}$
<i>e.</i>	$7 \overline{)3,920}$	$7 \overline{)7,329}$	$7 \overline{)9,156}$	$7 \overline{)7,049}$
<i>f.</i>	$7 \overline{)2,583}$	$7 \overline{)7,098}$	$7 \overline{)9,212}$	$7 \overline{)4,760}$

2. Divide by 7. Test:

<i>a.</i>	9,842	8,953	9,569	8,638
<i>b.</i>	3,038	9,863	7,469	9,723
<i>c.</i>	8,932	6,699	5,978	8,995

Multiplication and Division

1. Multiply by 7:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	957	1,380	1,368	1,278
<i>b.</i>	826	1,279	1,276	1,367

2. Divide by 7. Test:

<i>a.</i>	9,576	8,946	9,660	9,758
<i>b.</i>	5,782	5,362	8,855	9,429

Oral Problems

1. A man's farm is divided into 4 fields, each containing 8 acres. How many acres are there in the farm?

2. If 8 panes of glass are required for each window, how many windows will require 48 panes?

3. If a man works 8 hours a day, how many hours does he work in 10 days?

4. In an orchard of 80 trees all but 20 are peach trees. How many peach trees are there in the orchard?

5. How many players are needed in 2 games of football if each game requires 22 players?

6. A boy requires 12 days to do one fourth of a piece of work. How many days does he require to do the whole work?

1915 JANUARY 1915						
Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

1915 FEBRUARY 1915						
Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

7. How many days are there in January and February, 1915?

8. How many yards of wire are needed to make a fence 20 yards long, if the fence is 4 wires high?

9. How many chestnuts in 10 burs containing 2 nuts each and 10 containing 3 nuts each?

Written Problems

1. A man has a farm consisting of 7 fields, each containing 14 acres. How many acres are there in the farm?
2. If 8 panes of glass are required for each window, how many windows will require 96 panes?
3. If a farmer works 13 hours a day, how many hours does he work in 7 days?
4. In an orchard of 80 trees all but 28 are apple trees. How many are apple trees?
5. How many players are there in 4 games of baseball, if each game has 18 players?
6. A man requires 28 hours to do one third of a piece of work. How many hours does he require to do the whole work?

1916 FEBRUARY 1916						
Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29				

1916 MARCH 1916						
Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

7. How many days are there in February and March, 1916?
8. How many yards of wire are required to make a fence 27 yards long if the fence is 3 wires high?
9. How many chestnuts in 26 burs containing 2 chestnuts each and 13 containing 3 chestnuts each?

Multiplying by 8. By 9

Written Exercises

1. Find products:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i> 888×8	999×8	888×9	987×8
<i>b.</i> 887×8	787×9	887×9	878×9
<i>c.</i> 678×8	789×8	897×8	678×9
<i>d.</i> 788×8	788×9	878×8	787×9
<i>e.</i> 999×9	989×9	899×9	998×9
<i>f.</i> 567×8	467×9	576×8	576×9

2. Multiply by 8:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i> 1,056	1,167	1,234	963
<i>b.</i> 1,067	1,178	1,245	954
<i>c.</i> 1,088	1,189	1,225	947
<i>d.</i> 1,079	1,198	1,229	986
<i>e.</i> 1,097	1,187	1,239	927
<i>f.</i> 1,099	1,188	1,236	976

3. Multiply by 9:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i> 1,023	1,078	1,099	929
<i>b.</i> 1,034	1,089	1,088	938
<i>c.</i> 1,045	1,093	1,077	947
<i>d.</i> 1,056	1,095	1,066	956
<i>e.</i> 1,067	1,097	1,055	965
<i>f.</i> 1,079	1,068	1,044	987
<i>g.</i> 1,084	1,072	1,033	976

Division by 8. By 9

Written Exercises

1. Divide by 8. Test :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a.	$8 \overline{)3,752}$	$8 \overline{)8,520}$	$8 \overline{)9,984}$	$8 \overline{)8,352}$
b.	$8 \overline{)7,144}$	$8 \overline{)6,792}$	$8 \overline{)7,776}$	$8 \overline{)6,384}$
c.	$8 \overline{)8,368}$	$8 \overline{)8,744}$	$8 \overline{)8,464}$	$8 \overline{)9,856}$
d.	$8 \overline{)4,784}$	$8 \overline{)9,960}$	$8 \overline{)6,976}$	$8 \overline{)8,224}$
e.	$8 \overline{)9,160}$	$8 \overline{)5,536}$	$8 \overline{)8,952}$	$8 \overline{)8,600}$

2. Divide by 9. Test :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a.	$9 \overline{)7,317}$	$9 \overline{)4,797}$	$9 \overline{)6,804}$	$9 \overline{)9,819}$
b.	$9 \overline{)8,235}$	$9 \overline{)6,669}$	$9 \overline{)8,487}$	$9 \overline{)9,450}$
c.	$9 \overline{)6,489}$	$9 \overline{)8,514}$	$9 \overline{)5,166}$	$9 \overline{)7,389}$
d.	$9 \overline{)6,507}$	$9 \overline{)6,957}$	$9 \overline{)8,262}$	$9 \overline{)5,517}$
e.	$9 \overline{)5,625}$	$9 \overline{)8,919}$	$9 \overline{)5,328}$	$9 \overline{)9,828}$

3. Find quotients:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a.	$5 \overline{)9,375}$	$7 \overline{)8,008}$	$9 \overline{)9,405}$	$6 \overline{)7,602}$
b.	$6 \overline{)8,316}$	$8 \overline{)9,512}$	$8 \overline{)8,608}$	$5 \overline{)8,425}$
c.	$7 \overline{)9,009}$	$9 \overline{)8,838}$	$7 \overline{)6,006}$	$7 \overline{)5,005}$

Oral Problems

1. There are eight pints in a gallon; how many pints are there in 9 gallons?
2. There are 16 ounces in a pound; how many ounces are there in 1 pound 9 ounces?
3. How many pounds and ounces are there in 26 ounces?
4. How many ounces are there in $\frac{7}{8}$ pound?
5. There are 12 inches in a foot and 3 feet in a yard. How many inches are there in a yard?
6. When coal is \$6 per ton, how many tons can be bought for \$48?
7. When I burn $\frac{1}{8}$ ton of coal a day, how long will 1 ton last? 8 tons?
8. At $\$ \frac{1}{8}$ a yard, how many yards of muslin will cost \$1?
9. How many days are there from June 9 to June 30?
10. How many quart bottles will be needed to hold 9 gallons of milk?
11. When a boy earns \$6 a week, how long will it take him to earn \$48?
12. There are 8 quarts in a peck and 4 pecks in a bushel; how many quarts are there in a bushel?
13. How many days are there in 9 weeks?

Written Problems

1. There are 4 quarts in a gallon; how many quarts are there in 15 gallons?

2. How many ounces are there in 1 pound 15 ounces?

3. How many pounds and ounces are there in 30 ounces?

4. How many ounces are there in 1 pound and $\frac{7}{8}$ pound?

5. There are 36 inches in a yard; (a) how many inches are there in $\frac{1}{2}$ yard? (b) how many feet and inches?

6. When coal is \$6 per ton, how many tons can be bought for \$96?

7. When a factory burns $\frac{1}{2}$ ton of coal a day, how long will 45 tons last?

8. At $\$ \frac{1}{8}$ a yard, how many yards of muslin will cost \$12?

9. How many days are there from June 19 to June 30?

10. How many quart bottles will be needed to hold 13 gallons of milk?

11. When a boy earns \$6 per week, how many weeks will it take him to earn \$78?

12. There are 16 pints in a peck and 4 pecks in a bushel; how many pints are there in a bushel?

13. How many days are there in 13 weeks?

Multiplying by 10**Sight Exercises**

1. How many cents in 2 dimes? In 3 dimes?
In 5 dimes? In 9 dimes? In 10 dimes?
2. How many are ten 2's? Ten 4's? Ten 6's?

To multiply a number by 10 affix a cipher to the multiplicand.

$$\text{Thus } 16 \times 10 = 160; \quad 25 \times 10 = 250.$$

3. Give products:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a. 17×10	10×18	105×10	10×121
b. 19×10	10×21	206×10	10×343
c. 23×10	10×32	307×10	10×565

Dividing by 10

To divide by 10 a number ending in a cipher reject the final cipher in the dividend.

$$\text{Thus } 170 \div 10 = 17; \quad 280 \div 10 = 28.$$

1. Give quotients:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
a. $180 \div 10$	$600 \div 10$	$180 \div 18$	$1,800 \div 10$
b. $210 \div 10$	$790 \div 10$	$210 \div 21$	$1,950 \div 10$
c. $350 \div 10$	$800 \div 10$	$340 \div 34$	$2,160 \div 10$

Multiplying by a Multiple of 10

A dealer bought 30 boxes of pens. Each box contained 144 pens. How many pens did he buy?

PROCESS

The product by 0 is 0. Write 0 under the 0. Place the right-hand figure of the product by 3 under the 3.

144 pens
 $\times 30$
Ans. 4,320 pens

Sight Exercises

Give products:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	26×10	11×60	33×30	50×11
<i>b.</i>	43×20	11×70	22×40	20×44
<i>c.</i>	32×30	11×80	34×20	40×12
<i>d.</i>	21×40	11×90	31×30	30×13

Sight Problems

- How many hours in 2 days? In 20 days?
- How many inches in 3 feet? In 30 feet?
- How many ounces in 10 pounds?
- How many pens in 40 dozen?
- Find the cost of 50 yards at 11 cents per yard.
- How many minutes in 10 hours?
- How many miles will a train go in 20 hours at the rate of 43 miles per hour?
- At 14 bushels to the acre, how many bushels of wheat will 20 acres yield?

Written Exercises

Find products :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
a.	325	234	186	157	128
	$\times 30$	$\times 40$	$\times 50$	$\times 60$	$\times 70$
<hr/>					
b.	119	108	123	135	164
	$\times 80$	$\times 90$	$\times 80$	$\times 70$	$\times 60$
<hr/>					

Written Problems

1. Change (a) 40 days to hours; (b) 80 feet to inches; (c) 60 pounds to ounces.
2. Find the cost of 50 yards of dress goods at 28 cents per yard.

PROCESS

Write 28 cents, using the dollar mark and the decimal point. Place a decimal point in the product under the one in the multiplicand.

$$\begin{array}{r}
 \$.28 \\
 \times 50 \\
 \hline
 \$ 14.00 \text{ Ans.}
 \end{array}$$

3. How much will be paid for 27 pounds of butter at 30 cents a pound?
4. A dealer sold 30 yards of cloth at \$2.75 per yard. What did he receive for it?
5. A man receives \$3.50 per day. How much does he earn in February if he works 20 days?
6. What is the cost of 40 yards of carpet at \$1.25 per yard?
7. At \$3.75 a foot, what is the cost of an iron fence 70 feet long?

Multipliers of Two Figures

1. Each of 21 pieces of copper wire weighs 46 ounces. What is their total weight?

PROCESS		TEST
46 oz.	Multiply by 1, placing the right-	21
$\times 21$	hand figure of the product under	$\times 46$
<u>46</u>	the 1. Multiply by 2 tens, placing	<u>126</u>
92	the right-hand figure of the product	84
<u>Ans. 966 oz.</u>	under the 2. Combine the partial	<u>966</u>
	products.	
	Test by multiplying 21 by 46.	

Written Exercises

2. Find products. Test:

A	B	C	D
a. 44×22	84×53	32×75	61×82
b. 68×21	86×52	34×74	72×81
c. 22×33	95×51	36×73	56×99
d. 38×32	43×66	38×72	73×98
e. 36×31	51×65	39×71	84×97
f. 25×44	56×64	41×88	67×96
g. 31×43	58×63	52×87	75×95
h. 22×42	61×62	63×86	96×94
i. 37×41	63×61	76×85	48×93
j. 23×55	28×77	88×84	54×92
k. 72×54	31×76	99×83	88×91
l. 32×86	18×18	37×35	67×41
m. 63×72	25×64	72×41	49×54
n. 59×41	71×53	57×19	13×87

Written Problems

1. At 32 pupils to a class, how many pupils are there in 16 classes?
2. At the rate of 31 miles an hour; how far will a train go in 13 hours?
3. Find the cost of 42 acres of land at \$75 per acre.
4. When a bushel of oats weighs 32 pounds, how many pounds will 25 bushels weigh?

Written Exercises

1. Find the number of pounds of flour in 15 barrels containing 196 pounds of flour each.

TEST

After finding the result by multiplying 196 pounds by 15, test your answer by multiplying 15 by 196. Place the right-hand figure of the product by 6 under the 6, the right-hand figure of the product by 9 tens under the 9, and the right-hand figure of the product by 1 hundred under the 1. Combine the three partial products.

$$\begin{array}{r}
 15 \\
 196 \\
 \hline
 90 \\
 135 \\
 15 \\
 \hline
 2940
 \end{array}$$

2. Find products. Test:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i> 444×22	184×53	132×75	121×82
<i>b.</i> 468×21	186×52	134×74	122×81
<i>c.</i> 222×33	195×51	136×73	112×84
<i>d.</i> 298×32	143×66	138×72	123×78

Roman Numbers

20 is written XX

30 is written XXX

40 is written XL

50 is written L

A number between 20 and 29, 30 and 39, 40 and 49, is expressed by placing the letter or letters representing the ones after the letters representing the tens.

28 is written XXVIII

39 is written XXXIX

34 is written XXXIV

47 is written XLVII

Express in Roman numbers :

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
22	33	44	37	49
38	45	31	24	41
46	36	25	48	32
29	43	35	26	42
18	47	39	34	28

Read :

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
XVIII	XXIX	XXXIV	LII
XXIII	XLIX	XXV	XLVIII
XLVII	XXIV	XLII	XXXVI
XXXI	XLI	XXVII	XLIV

REVIEW TABLES AND TESTS

Fundamental Processes and Terms

There are four different processes whereby two numbers are operated upon to form a third number.

Signs of Processes	+	—	×	÷
Names of Signs	Plus	Minus	Times or Multiplied by	Divided by
Names of Processes	Addition	Subtraction	Multiplication	Division
Example	$36 + 2 = 38$	$36 - 2 = 34$	$36 \times 2 = 72$	$36 \div 2 = 18$
36 is called	Addend	Minuend	Multiplicand or Factor	Dividend
2 is called	Addend	Subtrahend	Multiplier or Factor	Divisor
Result is called	Sum	Difference or Remainder	Product	Quotient

The sign (=) placed before the result is called the sign of equality, and is read “equals” or “are.”

Review Tests

The following are types of reviews that should be frequently employed to determine the accuracy and the speed of a class as a whole, as well as of individual pupils.

They should be used in various ways. As a first exercise, each pupil in turn may give an answer from the book, the teacher noting the time required to complete the set and the number of errors made, the result being kept for comparison with subsequent trials.

As a second exercise, each pupil should write from the book the answers to as many questions as possible in a specified time. The papers should be prepared beforehand, each containing the pupil's name and a place for the score. At a signal the writing of answers begins, and pens are laid aside immediately when the signal is given to stop. Lead pencils should be used to check the answers and to write the score.

Reading and Writing Tests

These should be (a) read from the book, (b) copied from the book, and (c) written from dictation.

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>a.</i>	3610	90	750	3000
<i>b.</i>	120	4300	3082	2004
<i>c.</i>	7008	608	673	801
<i>d.</i>	9	6015	7000	2070
<i>e.</i>	678	873	905	200
<i>f.</i>	630	2076	265	6432
<i>g.</i>	850	50	9000	8204
<i>h.</i>	2010	6009	107	200
<i>i.</i>	3900	400	5021	720
<i>j.</i>	620	89	152	851
<i>k.</i>	1052	7279	600	8006
<i>l.</i>	590	7039	2500	3100
<i>m.</i>	300	928	7031	1602
<i>n.</i>	104	2309	2070	3600

Addition Tables*A*

2 and 2 are	4
2 and 3 are	5
2 and 4 are	6
2 and 5 are	7
2 and 6 are	8
2 and 7 are	9
2 and 8 are	10
2 and 9 are	11

B

3 and 2 are	5
3 and 3 are	6
3 and 4 are	7
3 and 5 are	8
3 and 6 are	9
3 and 7 are	10
3 and 8 are	11
3 and 9 are	12

C

4 and 2 are	6
4 and 3 are	7
4 and 4 are	8
4 and 5 are	9
4 and 6 are	10
4 and 7 are	11
4 and 8 are	12
4 and 9 are	13

D

5 and 2 are	7
5 and 3 are	8
5 and 4 are	9
5 and 5 are	10
5 and 6 are	11
5 and 7 are	12
5 and 8 are	13
5 and 9 are	14

E

6 and 2 are	8
6 and 3 are	9
6 and 4 are	10
6 and 5 are	11
6 and 6 are	12
6 and 7 are	13
6 and 8 are	14
6 and 9 are	15

F

7 and 2 are	9
7 and 3 are	10
7 and 4 are	11
7 and 5 are	12
7 and 6 are	13
7 and 7 are	14
7 and 8 are	15
7 and 9 are	16

G

8 and 2 are	10
8 and 3 are	11
8 and 4 are	12
8 and 5 are	13
8 and 6 are	14
8 and 7 are	15
8 and 8 are	16
8 and 9 are	17

H

9 and 2 are	11
9 and 3 are	12
9 and 4 are	13
9 and 5 are	14
9 and 6 are	15
9 and 7 are	16
9 and 8 are	17
9 and 9 are	18

Addition Tests

1. Give answers:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>
<i>a.</i>	3	6	2	3	9	2	4	8	5
	<u>+9</u>	<u>+5</u>	<u>+8</u>	<u>+3</u>	<u>+3</u>	<u>+6</u>	<u>+6</u>	<u>+9</u>	<u>+6</u>
<i>b.</i>	6	3	6	9	7	4	8	6	8
	<u>+3</u>	<u>+4</u>	<u>+8</u>	<u>+9</u>	<u>+8</u>	<u>+5</u>	<u>+5</u>	<u>+6</u>	<u>+7</u>
<i>c.</i>	5	7	3	6	4	7	9	8	4
	<u>+5</u>	<u>+9</u>	<u>+7</u>	<u>+4</u>	<u>+8</u>	<u>+2</u>	<u>+4</u>	<u>+6</u>	<u>+4</u>
<i>d.</i>	7	5	9	5	6	9	7	5	2
	<u>+6</u>	<u>+4</u>	<u>+2</u>	<u>+9</u>	<u>+2</u>	<u>+6</u>	<u>+3</u>	<u>+7</u>	<u>+5</u>
<i>e.</i>	9	2	4	8	2	6	5	7	3
	<u>+8</u>	<u>+9</u>	<u>+7</u>	<u>+4</u>	<u>+7</u>	<u>+9</u>	<u>+3</u>	<u>+4</u>	<u>+6</u>
<i>f.</i>	8	4	8	5	9	3	6	3	7
	<u>+8</u>	<u>+3</u>	<u>+2</u>	<u>+2</u>	<u>+5</u>	<u>+2</u>	<u>+7</u>	<u>+5</u>	<u>+5</u>
<i>g.</i>	4	8	9	2	5	2	3	7	2
	<u>+9</u>	<u>+3</u>	<u>+7</u>	<u>+2</u>	<u>+8</u>	<u>+3</u>	<u>+8</u>	<u>+7</u>	<u>+4</u>
<i>h.</i>	?	?	?	?	?	?	?	?	?
	<u>-9</u>	<u>-5</u>	<u>-9</u>	<u>-9</u>	<u>-3</u>	<u>-8</u>	<u>-7</u>	<u>-4</u>	<u>-6</u>
	9	4	8	7	3	8	9	4	8
<i>i.</i>	?	?	?	?	?	?	?	?	?
	<u>-5</u>	<u>-4</u>	<u>-7</u>	<u>-5</u>	<u>-4</u>	<u>-7</u>	<u>-5</u>	<u>-2</u>	<u>-7</u>
	9	3	7	6	5	4	8	3	5
<i>j.</i>	?	?	?	?	?	?	?	?	?
	<u>-8</u>	<u>-3</u>	<u>-8</u>	<u>-7</u>	<u>-3</u>	<u>-5</u>	<u>-4</u>	<u>-3</u>	<u>-8</u>
	5	5	7	6	4	7	9	6	4

Subtraction Tests

1. Give remainders:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>
<i>a.</i>	18 <u>-9</u>	8 <u>-4</u>	17 <u>-9</u>	10 <u>-3</u>	9 <u>-5</u>	15 <u>-6</u>	16 <u>-9</u>	8 <u>-6</u>	14 <u>-8</u>
<i>b.</i>	16 <u>-8</u>	9 <u>-6</u>	13 <u>-9</u>	16 <u>-7</u>	7 <u>-3</u>	12 <u>-7</u>	14 <u>-6</u>	6 <u>-3</u>	12 <u>-5</u>
<i>c.</i>	14 <u>-5</u>	8 <u>-5</u>	14 <u>-7</u>	11 <u>-5</u>	5 <u>-2</u>	10 <u>-8</u>	12 <u>-6</u>	9 <u>-2</u>	10 <u>-2</u>
<i>d.</i>	15 <u>-7</u>	9 <u>-4</u>	12 <u>-8</u>	13 <u>-7</u>	6 <u>-4</u>	14 <u>-9</u>	11 <u>-8</u>	7 <u>-4</u>	13 <u>-4</u>
<i>e.</i>	13 <u>-8</u>	7 <u>-5</u>	15 <u>-8</u>	10 <u>-5</u>	8 <u>-3</u>	10 <u>-7</u>	15 <u>-9</u>	9 <u>-7</u>	11 <u>-7</u>
<i>f.</i>	17 <u>-8</u>	9 <u>-3</u>	11 <u>-4</u>	12 <u>-9</u>	4 <u>-2</u>	11 <u>-6</u>	13 <u>-5</u>	8 <u>-2</u>	12 <u>-4</u>
<i>g.</i>	11 <u>-3</u>	5 <u>-3</u>	10 <u>-6</u>	12 <u>-3</u>	6 <u>-2</u>	13 <u>-6</u>	11 <u>-9</u>	7 <u>-2</u>	10 <u>-4</u>

2. Give subtrahends:

<i>a.</i>	14 <u>-?</u> 8	8 <u>-?</u> 6	16 <u>-?</u> 8	10 <u>-?</u> 3	4 <u>-?</u> 2	17 <u>-?</u> 8	15 <u>-?</u> 6	8 <u>-?</u> 2	18 <u>-?</u> 9
<i>b.</i>	12 <u>-?</u> 7	6 <u>-?</u> 3	14 <u>-?</u> 6	16 <u>-?</u> 9	8 <u>-?</u> 5	13 <u>-?</u> 4	12 <u>-?</u> 5	6 <u>-?</u> 3	16 <u>-?</u> 7

Multiplication Tables*A*

2 times 2 are	4
2 times 3 are	6
2 times 4 are	8
2 times 5 are	10
2 times 6 are	12
2 times 7 are	14
2 times 8 are	16
2 times 9 are	18

B

3 times 2 are	6
3 times 3 are	9
3 times 4 are	12
3 times 5 are	15
3 times 6 are	18
3 times 7 are	21
3 times 8 are	24
3 times 9 are	27

C

4 times 2 are	8
4 times 3 are	12
4 times 4 are	16
4 times 5 are	20
4 times 6 are	24
4 times 7 are	28
4 times 8 are	32
4 times 9 are	36

D

5 times 2 are	10
5 times 3 are	15
5 times 4 are	20
5 times 5 are	25
5 times 6 are	30
5 times 7 are	35
5 times 8 are	40
5 times 9 are	45

E

6 times 2 are	12
6 times 3 are	18
6 times 4 are	24
6 times 5 are	30
6 times 6 are	36
6 times 7 are	42
6 times 8 are	48
6 times 9 are	54

F

7 times 2 are	14
7 times 3 are	21
7 times 4 are	28
7 times 5 are	35
7 times 6 are	42
7 times 7 are	49
7 times 8 are	56
7 times 9 are	63

G

8 times 2 are	16
8 times 3 are	24
8 times 4 are	32
8 times 5 are	40
8 times 6 are	48
8 times 7 are	56
8 times 8 are	64
8 times 9 are	72

H

9 times 2 are	18
9 times 3 are	27
9 times 4 are	36
9 times 5 are	45
9 times 6 are	54
9 times 7 are	63
9 times 8 are	72
9 times 9 are	81

Multiplication Tests

1. Give products:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>
<i>a.</i>	$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$
<i>b.</i>	$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$
<i>c.</i>	$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$
<i>d.</i>	$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$
<i>e.</i>	$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$
<i>f.</i>	$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$
<i>g.</i>	$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$

2. Give dividends:

<i>a.</i>	$\frac{3)?}{7}$	$\frac{7)?}{3}$	$\frac{5)?}{5}$	$\frac{7)?}{9}$	$\frac{9)?}{7}$	$\frac{6)?}{6}$	$\frac{4)?}{6}$	$\frac{6)?}{4}$	$\frac{9)?}{3}$
<i>b.</i>	$\frac{3)?}{9}$	$\frac{4)?}{5}$	$\frac{5)?}{4}$	$\frac{8)?}{5}$	$\frac{5)?}{8}$	$\frac{9)?}{9}$	$\frac{7)?}{8}$	$\frac{8)?}{7}$	$\frac{4)?}{9}$

Division Tests

1. Give quotients :

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>
<i>a.</i>	5) <u>40</u>	9) <u>18</u>	6) <u>42</u>	4) <u>20</u>	2) <u>18</u>	9) <u>81</u>	8) <u>40</u>	7) <u>42</u>
<i>b.</i>	4) <u>16</u>	9) <u>45</u>	2) <u>12</u>	6) <u>18</u>	4) <u>8</u>	3) <u>15</u>	5) <u>35</u>	9) <u>27</u>
<i>c.</i>	7) <u>35</u>	6) <u>12</u>	8) <u>32</u>	5) <u>20</u>	3) <u>27</u>	7) <u>49</u>	9) <u>54</u>	2) <u>16</u>
<i>d.</i>	4) <u>12</u>	7) <u>14</u>	3) <u>6</u>	8) <u>72</u>	8) <u>16</u>	5) <u>45</u>	3) <u>18</u>	7) <u>56</u>
<i>e.</i>	8) <u>56</u>	6) <u>30</u>	4) <u>24</u>	7) <u>21</u>	8) <u>64</u>	6) <u>36</u>	9) <u>72</u>	5) <u>25</u>
<i>f.</i>	2) <u>10</u>	3) <u>12</u>	6) <u>54</u>	8) <u>48</u>	2) <u>6</u>	7) <u>28</u>	3) <u>24</u>	2) <u>8</u>
<i>g.</i>	6) <u>48</u>	2) <u>4</u>	5) <u>15</u>	9) <u>36</u>	8) <u>24</u>	2) <u>14</u>	4) <u>32</u>	3) <u>9</u>
<i>h.</i>	4) <u>28</u>	9) <u>63</u>	3) <u>21</u>	5) <u>30</u>	4) <u>36</u>	7) <u>63</u>	5) <u>10</u>	6) <u>24</u>

2. Give divisors :

<i>a.</i>	$\frac{?)24}{4}$	$\frac{?)10}{2}$	$\frac{?)63}{9}$	$\frac{?)21}{7}$	$\frac{?)30}{6}$	$\frac{?)36}{9}$	$\frac{?)63}{7}$	$\frac{?)28}{7}$
<i>b.</i>	$\frac{?)40}{8}$	$\frac{?)18}{2}$	$\frac{?)42}{7}$	$\frac{?)20}{5}$	$\frac{?)18}{9}$	$\frac{?)40}{5}$	$\frac{?)81}{9}$	$\frac{?)42}{6}$
<i>c.</i>	$\frac{?)16}{4}$	$\frac{?)45}{5}$	$\frac{?)12}{6}$	$\frac{?)18}{3}$	$\frac{?)8}{2}$	$\frac{?)15}{5}$	$\frac{?)35}{7}$	$\frac{?)27}{3}$
<i>d.</i>	$\frac{?)48}{8}$	$\frac{?)4}{2}$	$\frac{?)15}{3}$	$\frac{?)36}{4}$	$\frac{?)24}{3}$	$\frac{?)14}{7}$	$\frac{?)8}{4}$	$\frac{?)9}{3}$
<i>e.</i>	$\frac{?)35}{5}$	$\frac{?)12}{2}$	$\frac{?)32}{4}$	$\frac{?)20}{4}$	$\frac{?)27}{9}$	$\frac{?)54}{6}$	$\frac{?)49}{7}$	$\frac{?)16}{8}$

Multiplication Tests

1. Give dividends:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>
<i>a.</i>	$5 \overline{) 6}$	$9 \overline{) 4}$	$8 \overline{) 6}$	$7 \overline{) 3}$	$8 \overline{) 9}$	$5 \overline{) 4}$	$6 \overline{) 3}$	$4 \overline{) 5}$	$2 \overline{) 9}$
<i>b.</i>	$4 \overline{) 2}$	$3 \overline{) 9}$	$2 \overline{) 3}$	$8 \overline{) 2}$	$3 \overline{) 2}$	$8 \overline{) 8}$	$4 \overline{) 9}$	$8 \overline{) 3}$	$5 \overline{) 3}$
<i>c.</i>	$6 \overline{) 9}$	$4 \overline{) 6}$	$2 \overline{) 6}$	$3 \overline{) 5}$	$8 \overline{) 4}$	$6 \overline{) 7}$	$9 \overline{) 2}$	$5 \overline{) 8}$	$9 \overline{) 5}$
<i>d.</i>	$4 \overline{) 4}$	$7 \overline{) 5}$	$4 \overline{) 3}$	$8 \overline{) 7}$	$2 \overline{) 5}$	$3 \overline{) 3}$	$6 \overline{) 8}$	$4 \overline{) 7}$	$6 \overline{) 4}$
<i>e.</i>	$5 \overline{) 2}$	$4 \overline{) 8}$	$3 \overline{) 6}$	$9 \overline{) 8}$	$5 \overline{) 7}$	$8 \overline{) 5}$	$9 \overline{) 6}$	$6 \overline{) 2}$	$3 \overline{) 4}$

Multiplication with Carrying

2. Change to improper fractions:

<i>a.</i>	$9\frac{1}{2}$	$8\frac{1}{3}$	$7\frac{2}{3}$	$9\frac{1}{4}$	$8\frac{3}{4}$	$9\frac{1}{5}$	$8\frac{2}{5}$	$7\frac{3}{5}$	$6\frac{4}{5}$
<i>b.</i>	$9\frac{1}{6}$	$8\frac{5}{6}$	$9\frac{1}{8}$	$8\frac{3}{8}$	$7\frac{5}{8}$	$6\frac{7}{8}$	$9\frac{1}{9}$	$8\frac{2}{9}$	$7\frac{4}{9}$
<i>c.</i>	$6\frac{5}{9}$	$5\frac{7}{9}$	$3\frac{8}{9}$	$9\frac{7}{8}$	$8\frac{5}{8}$	$7\frac{3}{8}$	$5\frac{1}{8}$	$9\frac{5}{6}$	$8\frac{1}{6}$
<i>d.</i>	$9\frac{4}{5}$	$8\frac{3}{5}$	$7\frac{2}{5}$	$6\frac{1}{5}$	$9\frac{3}{4}$	$8\frac{1}{4}$	$9\frac{2}{3}$	$7\frac{1}{3}$	$8\frac{1}{2}$

Division with Remainders

3. Change to mixed numbers:

<i>a.</i>	$\frac{15}{2}$	$\frac{37}{5}$	$\frac{51}{8}$	$\frac{44}{5}$	$\frac{50}{9}$	$\frac{13}{3}$	$\frac{47}{5}$	$\frac{52}{9}$	$\frac{17}{2}$
<i>b.</i>	$\frac{19}{3}$	$\frac{33}{8}$	$\frac{31}{4}$	$\frac{43}{6}$	$\frac{61}{8}$	$\frac{26}{5}$	$\frac{25}{3}$	$\frac{31}{5}$	$\frac{49}{6}$
<i>c.</i>	$\frac{31}{5}$	$\frac{65}{9}$	$\frac{48}{5}$	$\frac{71}{8}$	$\frac{73}{9}$	$\frac{53}{6}$	$\frac{73}{8}$	$\frac{39}{4}$	$\frac{67}{9}$
<i>d.</i>	$\frac{41}{6}$	$\frac{26}{3}$	$\frac{58}{9}$	$\frac{25}{4}$	$\frac{13}{2}$	$\frac{43}{5}$	$\frac{35}{9}$	$\frac{29}{3}$	$\frac{34}{5}$

Division Tests

1. Give answers:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>
<i>a.</i>	8	6	5	9	2	8	9	4	8
	$\frac{\times ?}{40}$	$\frac{\times ?}{12}$	$\frac{\times ?}{15}$	$\frac{\times ?}{72}$	$\frac{\times ?}{6}$	$\frac{\times ?}{32}$	$\frac{\times ?}{54}$	$\frac{\times ?}{28}$	$\frac{\times ?}{64}$
<i>b.</i>	2	5	7	2	9	7	4	6	9
	$\frac{\times ?}{18}$	$\frac{\times ?}{45}$	$\frac{\times ?}{35}$	$\frac{\times ?}{14}$	$\frac{\times ?}{45}$	$\frac{\times ?}{14}$	$\frac{\times ?}{12}$	$\frac{\times ?}{48}$	$\frac{\times ?}{36}$
<i>c.</i>	7	3	5	3	6	8	2	8	7
	$\frac{\times ?}{42}$	$\frac{\times ?}{18}$	$\frac{\times ?}{35}$	$\frac{\times ?}{12}$	$\frac{\times ?}{18}$	$\frac{\times ?}{56}$	$\frac{\times ?}{16}$	$\frac{\times ?}{24}$	$\frac{\times ?}{21}$
<i>d.</i>	4	6	3	8	7	3	5	9	4
	$\frac{\times ?}{8}$	$\frac{\times ?}{42}$	$\frac{\times ?}{27}$	$\frac{\times ?}{16}$	$\frac{\times ?}{56}$	$\frac{\times ?}{24}$	$\frac{\times ?}{10}$	$\frac{\times ?}{18}$	$\frac{\times ?}{24}$
<i>e.</i>	5	4	2	6	5	4	8	7	2
	$\frac{\times ?}{20}$	$\frac{\times ?}{16}$	$\frac{\times ?}{12}$	$\frac{\times ?}{54}$	$\frac{\times ?}{30}$	$\frac{\times ?}{36}$	$\frac{\times ?}{72}$	$\frac{\times ?}{28}$	$\frac{\times ?}{10}$
<i>f.</i>	9	3	4	7	6	3	5	8	9
	$\frac{\times ?}{81}$	$\frac{\times ?}{9}$	$\frac{\times ?}{32}$	$\frac{\times ?}{49}$	$\frac{\times ?}{24}$	$\frac{\times ?}{15}$	$\frac{\times ?}{25}$	$\frac{\times ?}{48}$	$\frac{\times ?}{63}$
<i>g.</i>	?	?	?	?	?	?	?	?	?
	$\frac{\times 8}{64}$	$\frac{\times 4}{36}$	$\frac{\times 6}{24}$	$\frac{\times 3}{21}$	$\frac{\times 5}{10}$	$\frac{\times 7}{63}$	$\frac{\times 5}{30}$	$\frac{\times 9}{63}$	$\frac{\times 4}{28}$
<i>h.</i>	?	?	?	?	?	?	?	?	?
	$\frac{\times 6}{48}$	$\frac{\times 2}{18}$	$\frac{\times 3}{24}$	$\frac{\times 8}{48}$	$\frac{\times 7}{28}$	$\frac{\times 6}{54}$	$\frac{\times 3}{12}$	$\frac{\times 8}{16}$	$\frac{\times 2}{10}$

Problem Tests

Write only the answers.

1. A farmer has 20 cows in the pasture, which is 4 more than are in the barn. How many are in the barn?

2. At 4 for a cent, how many candies can be bought for 8 cents?

3. What number divided by 2 gives a quotient of 8?

4. In 5 years John will be 17 years old. How old is he now?

5. After spending 7 cents Mary still has 5 cents. How many cents had she at first?

6. A boy planted 12 bushes in 3 equal rows. How many were there in each row?

7. How many acres are there in two fields one containing 15 acres and the other containing 10 acres?

8. At 6 cents per pound, how many pounds of sugar can be bought for 60 cents?

9. John lives 90 rods from the school, William lives 84 rods from it. How much farther has John to walk in going to school than William?

10. The sum of two numbers is 84. One of the numbers is 50. What is the other number?

11. There are 15 boys and 10 girls in a class. How many pupils are there in the class?

One Operation

Do not find the answers to the following problems. Merely write the numbers and place the proper sign between them.

1. A farmer has 37 cows in the pasture, which is 14 more than are in the barn. How many are in the barn?

2. At 4 for a cent, how many marbles can be bought for 17 cents?

3. What number divided by 13 gives a quotient of 7?

4. In 18 years James will be 33 years old. How old is he now?

5. After spending 27 cents Margaret still has 35 cents. How many cents had she at first?

6. A man planted 192 trees in 12 equal rows. How many were there in each row?

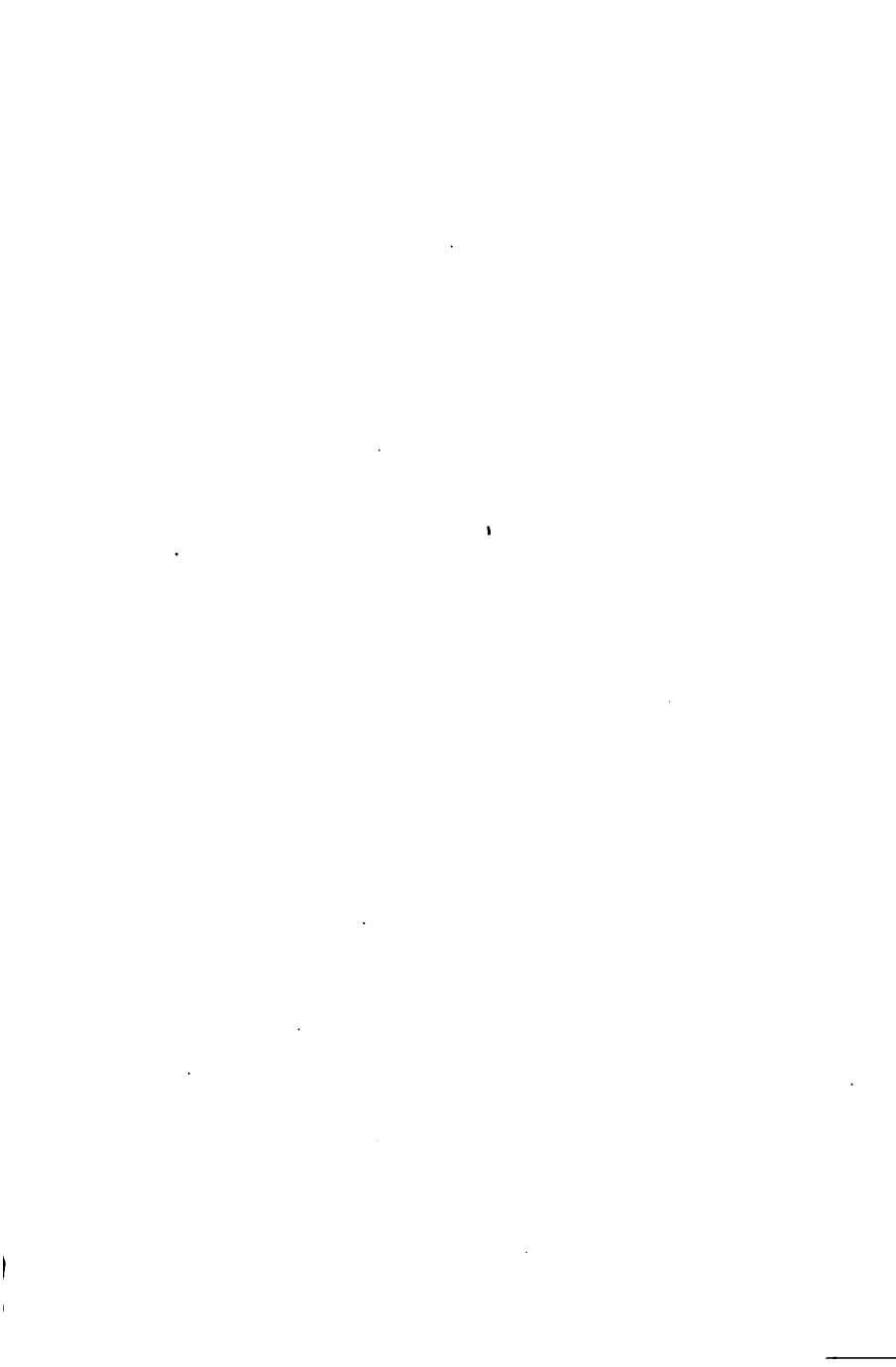
7. How many acres are there in two fields, one containing 48 acres and the other containing 65 acres?

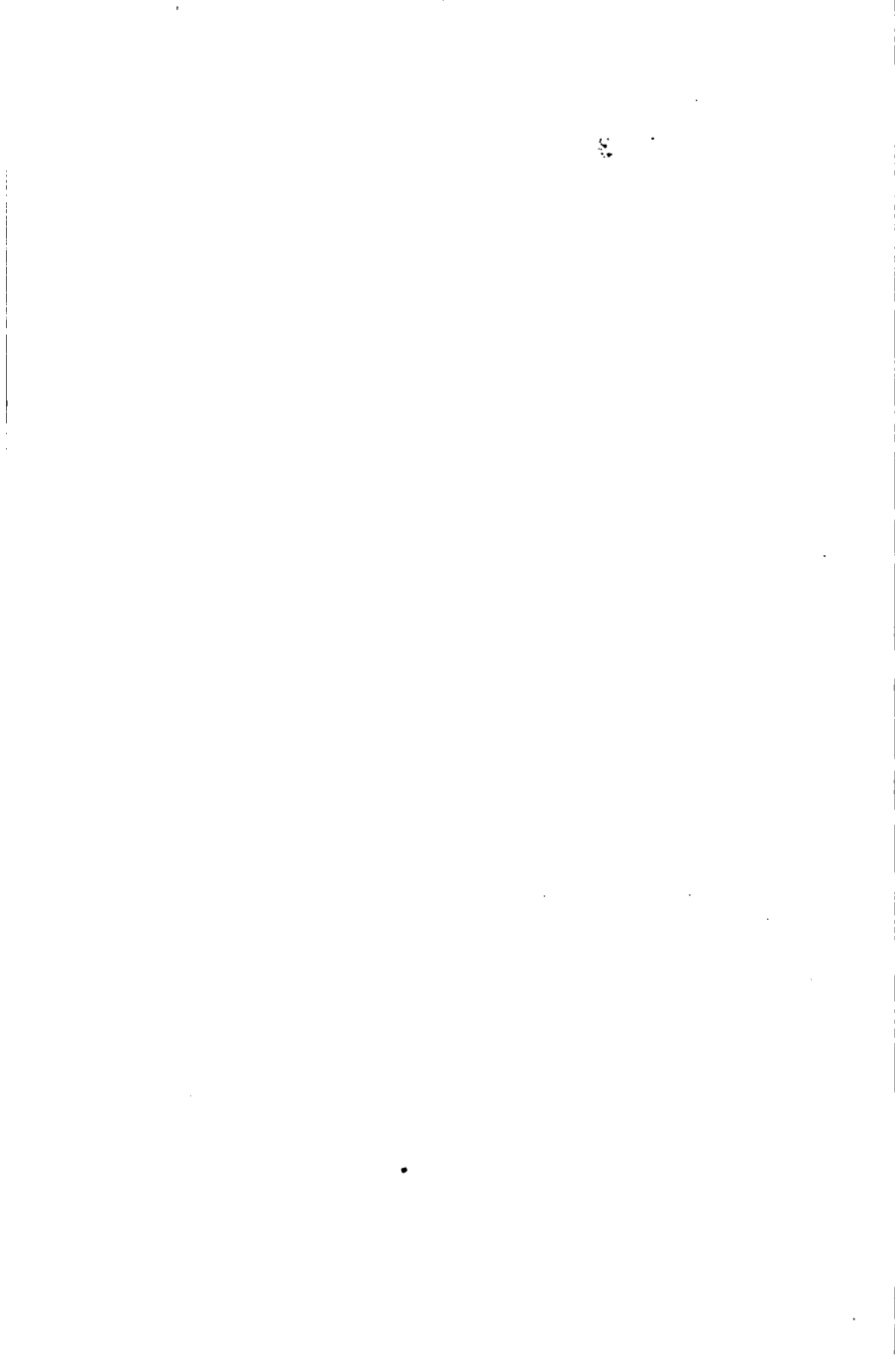
8. At 6 cents a pound, how many pounds of sugar can be bought for 96 cents?

9. Mary lives 90 rods from the school; Margaret lives 47 rods from it. How many rods farther has Mary to walk to school than Margaret?

10. The sum of two numbers is 96. One of the numbers is 39. What is the other number?

11. There are 48 boys and 45 girls in a school. How many pupils are there in the school?





Taken:

